

Prepared for:

**National Ceramic Industries Australia**

**PO Box 765**

**Maitland NSW 2320**

# Environmental Assessment Scoping Report

## Expansion of Ceramic Tile Manufacturing Facility, Rutherford

ENSR Australia Pty Ltd (ENSR)

22 December 2008

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## Distribution

### Environmental Assessment Scoping Report Expansion of Ceramic Tile Manufacturing Facility, Rutherford

22 December 2008

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Appendix A NCIA Consent Conditions

## 1.0 Introduction

National Ceramic Industries Australia Pty Ltd (NCIA) proposes to undertake an expansion of their existing ceramic tile manufacturing facility (the Facility) at Rutherford, NSW. The proposal includes the construction and operation of a second factory building with four additional production lines on a parcel of land adjacent to the existing Facility, as well as the construction and operation of four co-generation plants and other associated infrastructure.

NCIA intends to seek Project Approval for the proposed development under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

### 1.1 Background

The Facility currently operated by NCIA was granted development consent under Part 4 of the EP&A Act on 2 July 2003.

Consent was granted subject to a number of conditions, including conditions related to the staging of the development, as described in the Environmental Impact Statement (EIS) prepared by Parsons Brinckerhoff, dated 10 December 2002. In accordance with the development described in the EIS and related conditions of development consent, the Facility was to be constructed in two phases, with building fit-out to occur in four stages.

The consent stipulated a staged development, which was a result of concerns relating to air emissions from the proposal. As such, a stringent feed-forward/feed-back mechanism was incorporated into the development consent requiring monitoring and reporting of emissions to confirm environmental performance at each stage, and use of this data to predict air emissions performance for the subsequent stage of the operation prior to its commencement.

Stage Two of the Facility is in the commissioning phase and once operational production of the Facility would be approximately 6.4 million square metres of ceramic tiles per annum, of the previously approved production rate of 12.8 million square metres of tiles per annum. The proposed expansion, known as Stages Five to Eight, would involve the doubling of the current approved capacity to 25.6 million square metres of tiles produced per annum.

NCIA are seeking approval to expand the Facility, including construction and operation of a second factory building with four additional production lines on an adjacent parcel of land to the east of the existing Facility. NCIA are also seeking approval to integrate two co-generation plants to the existing and two to the proposed production lines. The co-generation plants would be retrofitted to the existing approved plant. Of the four proposed co-generation plants, one would be fitted to each pair of production lines for Stages One to Two, Three to Four, Five to Six, and Seven to Eight.

### 1.2 Project Context

Prior to the development of the Facility at Rutherford NSW, the majority of domestic ceramic tile consumption was of tiles imported from Italy, Spain, South East Asia and Brazil.

Since 2005, NCIA has been successful in meeting the current domestic and international tile demands. It is anticipated that this demand will continue to increase in the foreseeable future, therefore NCIA are proposing an expansion of their current Facility. The proposal would also introduce improved technologies into the tile making process, providing efficiencies in both production costs and production rates.

### 1.3 Location

The proposed expansion is to be located adjacent to the existing operation, located on Lot 101 DP 1062820 Racecourse Rd, Rutherford, within the local government area of Maitland. The existing Facility is located within the Rutherford Industrial Estate where land use is predominantly industrial. An existing golf course is located on the southern and eastern boundaries of the Facility, known as Westside Golf Course. The northern and western boundaries are bordered by industrial developments. The regional location of the site is indicated in **Figure 1**.

### 1.4 Approval Process

NCIA is seeking Project Approval under Part 3A of the EP&A Act for the construction and operation of Stages Five to Eight, including the installation of four co-generation plants.

*State Environmental Planning Policy (Major Projects) 2005 (SEPP 2005)* defines development to which Part 3A of the EP&A Act applies. Specifically, Schedule 1 of SEPP 2005 sets out development classifications for developments to which Part 3A applies. The proposed expansion is of a kind described in Schedule 1, being:

*9 Metal, mineral or extractive material processing, being:*

*Development that has a capital investment value of more than \$30 million or employs 100 or more people for any of the following purposes:*

*b) brickworks, ceramic works, silicon or glassworks or tile manufacture*

As the proposal has a capital investment value of more than \$30 million, the likely approval process is under Part 3A of the EP&A Act.

### 1.5 Purpose and Structure of Report

The purpose of this report is to characterise the proposed expansion and provide an overview of its potential effects on the environment and the community. Additionally, this Environmental Assessment Scoping Report (EASR) is intended to provide the Department of Planning (DoP) and other statutory authorities with sufficient information to understand the key environmental issues associated with the proposal.

The information contained in this report will be used to determine whether the proposal meets the criteria for Major Project status under State Environmental Planning Policy (SEPP) 2005 and to develop the Director-General's Requirements for the Environmental Assessment.

The structure of this EASR is outlined below:

- **Sections 1 and 2** provide an introduction to the proposed expansion, including a description of the proposal and its main components
- **Section 3** describes the legislation applying to the proposed expansion
- **Section 4** provides details of preliminary consultation undertaken with regulatory authorities, the community and neighbouring industry
- **Sections 5 and 6** report on the environmental implications of the proposal, including the baseline situation and anticipated impacts
- **Section 7** examines the likely impacts of the proposed expansion on community, transport and resources

- **Section 8** outlines the potential effects of the proposal on the community in terms of social, heritage and cultural impacts, together with the economic implications of the proposed expansion
- **Section 9** assesses the potential environmental risks associated with proposal and prioritises them, and
- **Section 10** presents a summary of the findings of the EASR and provides a conclusion on the level of environmental assessment required to support the preliminary project application.

## 1.6 The Proponent

The proponent, NCIA, is 70 percent owned by Ceramics Industries Limited with the remainder being Australian investors (27.5%) and an Italian investor (2.5%). NCIA has been operating since plant commissioning in 2004 and has experienced significant growth initiating the need to expand the current Facility.

Ceramics Industries Limited is a major producer of ceramic tiles and sanitary ware in South Africa and was publicly listed on the Johannesburg Stock Exchange in 1991.

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**Figure 1** Site Location  
**National Ceramic Industries Australia**  
 Expansion of Ceramic Tile Manufacturing  
 Facility  
 Rutherford

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## 2.0 Characterisation of Project

### 2.1 Project Objective

The objective of the proposed expansion is to increase the tile manufacturing capacity of NCIA's current Facility. The proposal would involve the addition of Stages Five to Eight to the Facility, which includes the construction of an additional factory building that would house the four additional production lines and the installation of two co-generation plants and associated infrastructure. Additionally, two co-generation plants would be installed in the existing plant, one for each pair of production lines, Stages One to Two and Three to Four.

Currently, the existing consent has a feed-forward feed-back system as explained in **Section 1.1**. The proposed increased production capacity is to meet predicted future demand in ceramic tile products both domestically and internationally. The additional production lines (Stages Five to Eight) would be operated using a modernised production process compared the existing operation (Stages One to Four).

### 2.2 Project Description

NCIA propose to extend their current facility located at Rutherford, NSW. The Facility produces high quality ceramic wall and floor tiles utilising a number of raw products including clay, feldspar and glazes. The process involves grinding and mixing of predominantly clay and feldspar, followed by a process of drying the mixture, adding dry glaze, roller pressing, additional dry glazing and decorating, additional pressing, cutting to size and firing prior to packaging and dispatch.

When Stage Two is operational, NCIA will produce approximately 6.4 million square meters of tiles per annum. Existing approvals allow production of up to 12.8 million square meters of tiles per annum when Stages One to Four are fully operational. The proposed expansion of Stages Five to Eight would increase production to approximately 25.6 million square meters of tiles per annum.

The proposal would involve:

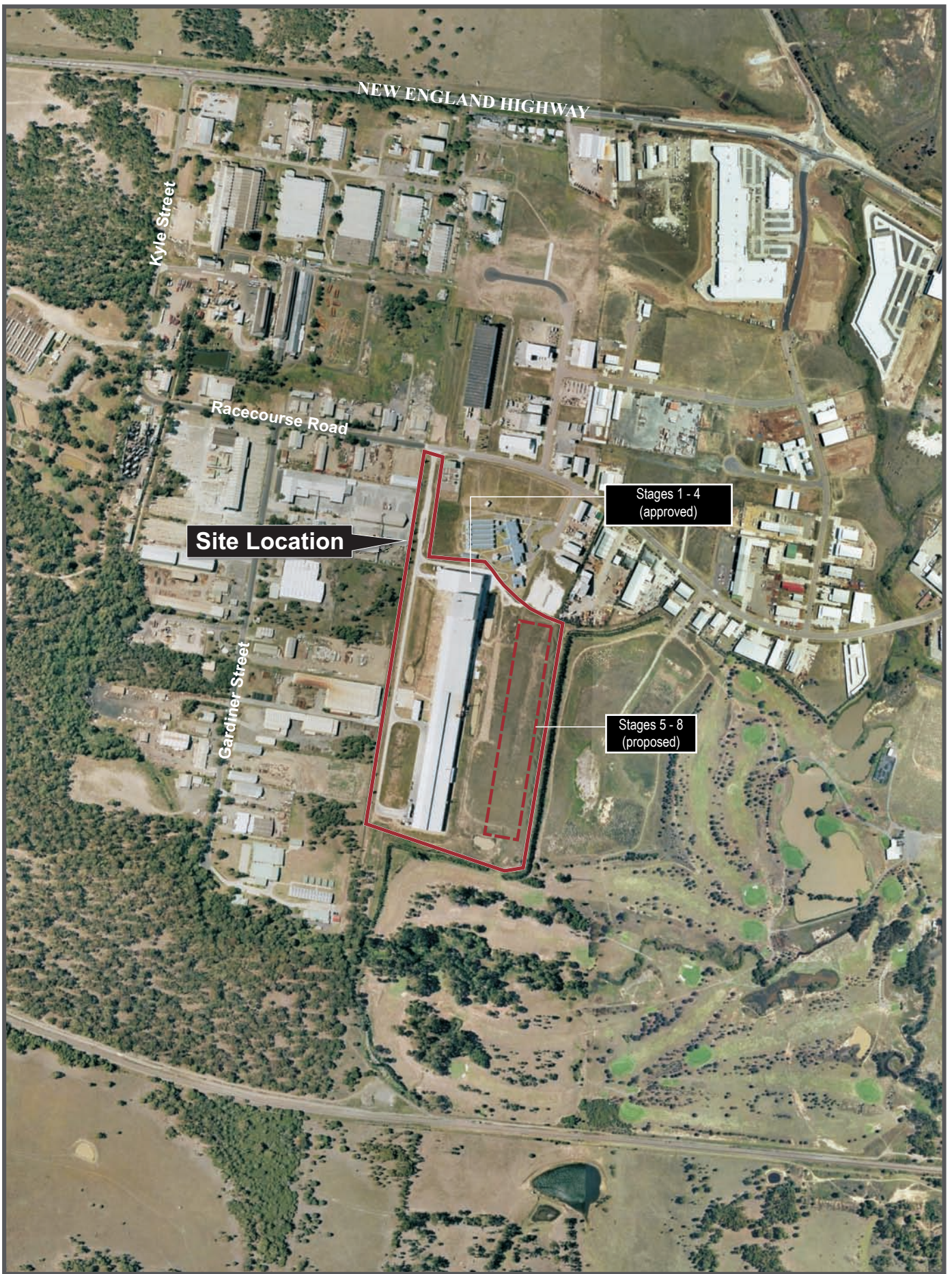
- Construction of a second factory building adjacent to the current building to accommodate four additional production lines (Stages Five to Eight)
- Commissioning of four co-generation plants, one fitted to each pair of production lines for Stages One to Two, Three to Four, Five to Six, and Seven to Eight. The co-generation plants would feed approximately 30% of electricity produced back in to the electricity grid and utilise excess heat from the gas turbines to provide supplementary energy for the spray driers (approximately 80% of their energy requirement), and
- Development of associated infrastructure and services.

#### 2.2.1 Site Layout

The proposed site layout including the existing Facility is provided in **Figure 2**. The new building would be of similar scale and structure to that of the existing building and would be constructed close to the eastern boundary of the site. The building would be constructed in a north south orientation, with raw material storage and production beginning at the northern end and dispatch occurring at the southern end.

Internal traffic would travel on a two way road network along the western boundary and the other between the two buildings. Additional stormwater detention basins would be constructed to capture site run-off and the boundary areas would be landscaped.

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**Figure 2** | Site Location and Surrounds  
 National Ceramic Industries Australia  
 Expansion of Ceramic Tile  
 Manufacturing Facility  
 Rutherford

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## 2.2.2 Process Description

The manufacture of ceramic tiles involves numerous steps and a process flow diagram is provided in **Figure 3**. Due to technology improvements, the manufacturing process for Stages Five to Eight would be slightly different to the manufacturing process used in Stages One to Four. A brief description detailing the various steps in the proposed tile manufacture process is provided below. The process described below would be replicated along each production line for Stages Five to Eight.

### ***Raw Materials***

Raw materials that are used in the tile manufacturing process are predominantly clays and feldspars. These are naturally occurring products, which are typically sourced from quarries located in NSW and Western Australia. Clay is the main component of the tiles in the unfired state, providing both strength and body and contributing to the final properties of the tile. The feldspar is used to reduce water adsorption of the tile and adds to the tiles strength and whiteness.

A number of dry and wet glazes may also be used during the process, depending on the current demand for tile design and style. These typically comprise dry glazes, wet glazes and printing powders. Frit is a component of the glaze, which varies depending on the level of gloss required in the tile. Frit is made up of oxides and minerals such as feldspar and kaolin, and is typically imported from Italy or Spain.

### ***Batching and Mill Feeding***

The raw materials used in the initial phase of manufacture would be stored in a series of bunkers located at the northern end of the plant. The materials are collected from the storage bunkers using a bucket wheel loader, which are then placed into continuous weigh feeding hoppers.

The continuous weigh feeding hoppers ensure that the clay mill has a constant and consistent supply of raw materials. At the mill, water and deflocculant are added to the milled material, also known as composite. Deflocculant is used to ensure that the composite does not combine during the milling process. The wet clay milling process described above for Stages Five to Eight is identical to Stages One to Four.

### ***Slip Preparation, Drying and Pressing***

Slip is the product of the wet clay milling process described above. Slip preparation involves adding water (40% volume) and deflocculant to the composite to produce the composite solution, or slip. The slip is then gravity fed into a series of storage tanks. The slip is kept in suspension using stirrers within the tanks. From the tanks the slip is pumped out and sprayed through fine ceramic nozzles into the spray drier.

The granulated composite that remains after the spray drying process contains approximately six percent water. Water vapour and fine particulates would be emitted from an emissions stack off the spray drier. From the spray drier, all remaining lumps of clay are removed by screens and are returned to the clay mill for further processing. The granulated composite is then transferred via a conveyor belt to storage silos. The granulated composite is left within the silos for approximately 12 hours, which allows for interaction between water and clay to take place. The slip preparation and drying process described above for Stages Five to Eight is identical to Stages One to Four.

The storage silos feed onto a conveyor belt where a dry glaze is applied. This material then passes through a roller press that compacts the dry glaze into the unfired granulated composite. Following the roller press additional dry glazing and tile decorating (printing) can occur as required. The continuous length is then cut into large sheets and is re-pressed. The sheets are then trimmed if necessary and cut to the required tile size. The tiles may undergo a final application of wet glaze as the style of tile requires and dried in a tile drier. Stack emissions from the tile driers include water vapour and fine particulates.

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### **Glazing**

A dry glaze would be applied prior to being roller pressed and again prior to being cut and dried as described above. There would be limited wet glazing undertaken in Stages Five to Eight, when compared to Stages One to Four. It is not anticipated that dry glazing would have a negative impact on air quality. It is anticipated particulate emissions are more likely to be reduced.

Storage of dry glazes would take place in a number of storage silos that would be located in the northern section of the new factory, prior to the beginning of the production line conveyors. Seven dry glaze colours are required to manufacture the full range of tiles, however up to twenty four storage silos may be installed.

Wet glaze application in Stages Five to Eight would be significantly reduced when compared to Stages One to Four. Many tile varieties would not require wet glaze application in Stages Five to Eight because of the use of dry glazes. Wet glaze preparation is undertaken as a batch process within the glaze preparation plant. Batches are prepared based on the particular glaze or effect that is required. The wet glazes are milled in batches, are stored as a liquid and are left to stand for 24 hours to allow for cooling and bubble removal.

Wet glazes are applied to the tile on the glazing line after the tiles are cut to size and dried in the tile dryer. Wet glazes are applied using an airpower applicator, which is a pump attached to rotating spraying nozzles that ensure a consistent finish over the tile. Wet glazes would be used to further enhance or decorate tiles in ways not possible during the dry glazing process.

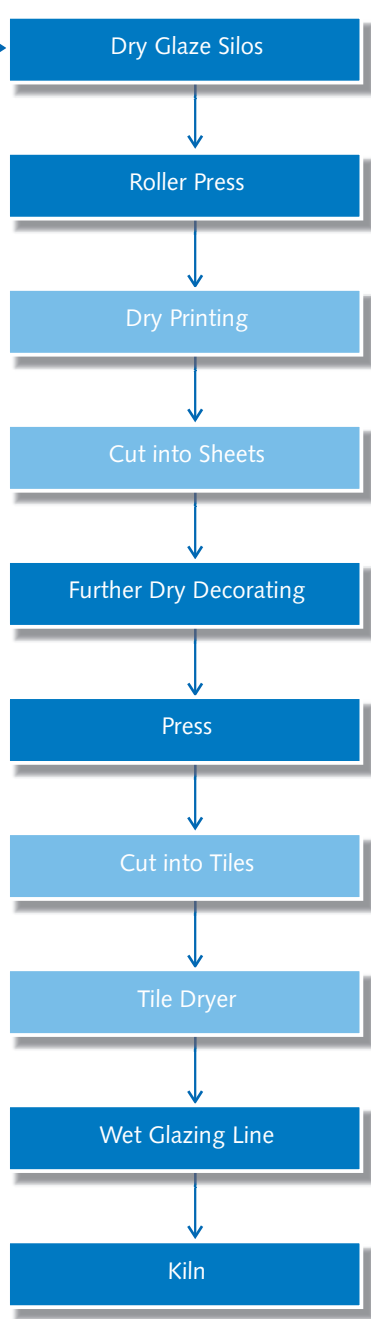
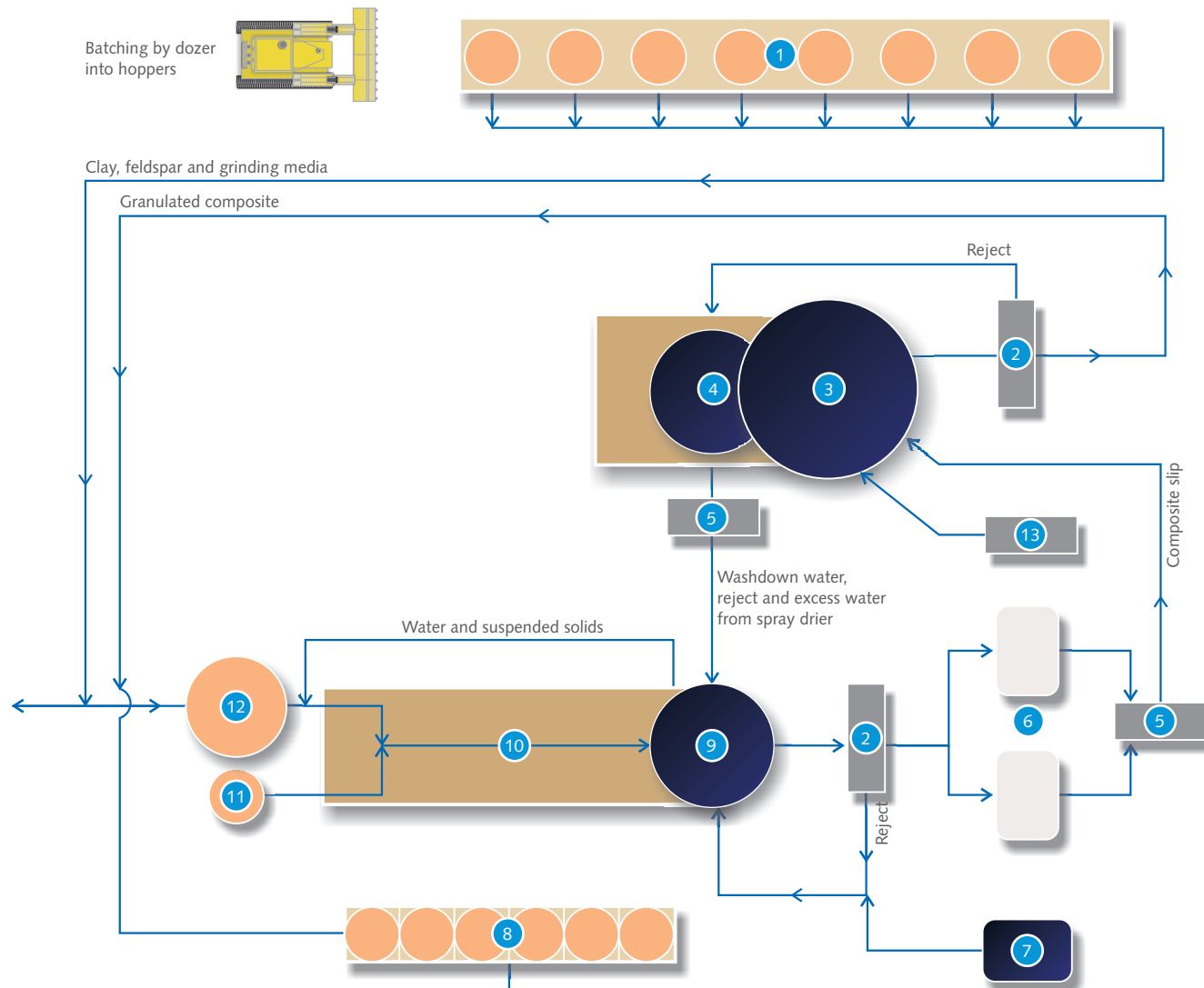
### **Firing**

Tiles are fed through a pre-kiln which removes the moisture from the applied wet glaze. The tiles then pass through the kiln at 1,300 degrees centigrade. Once the tiles have cooled they are available for packaging and dispatch.

Each kiln would generate gaseous emissions from the combustion of natural gas. These emissions would be released via one scrubbed stack per kiln.

### **Packaging and Dispatch**

Prior to packaging the tiles are scanned for grading in line with NCIA's quality control procedures. Tiles are then boxed, palletised and shrink wrapped through an automated process. Once on the pallets, the tiles are stored, awaiting dispatch by road transport.



**KEY**

- 1 Raw material storage
- 2 Screens
- 3 Spray drier
- 4 Collection tank
- 5 Pump
- 6 Composite slip storage (kept in suspension by xxxx)
- 7 Excess washdown water, mains water
- 8 Granulate composite storage (12 hours)
- 9 Surge tank (8 cubic metres)
- 10 Clay mill
- 11 Deflocculant hopper
- 12 Raw material storage silo
- 13 Co-Gen Plant

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**Figure 3** Process Flow Diagram  
**National Ceramic Industries Australia**  
 Expansion of Ceramic Tile Manufacturing Facility  
 Rutherford

### 2.2.3 Co-Generation Plants

Co-generation is the simultaneous production of electricity and heat using a single fuel source. The heat which is produced from the electricity generating process is captured and utilised to produce high and low level steam. The steam can then be used as a heat source for numerous industrial applications. This process is most common in European countries, but has been increasingly adopted in industrial applications in Australia. The advantages of co-generation are that it harnesses heat that would otherwise be wasted. Carbon dioxide emissions can be substantially reduced whilst achieving greater thermal efficiencies.

NCIA propose to install four co-generation plants across their production lines, one fitted to each pair of production lines for Stages One to Two, Three to Four, Five to Six, and Seven to Eight. Each of the four co-generation plants would be located at the clay preparation spray drier area.

The co-generation plants would capture waste exhaust and heat from the boiler that runs the turbine would be used to operate the spray driers. Each co-generation plant would generate enough electricity to operate the two stages / production lines it is integrated with and deliver excess electricity back into the grid. Excess electricity from each co-generation plant is estimated to be approximately 30% of that produced. It is anticipated that the excess heat from the gas turbines would provide approximately 80% of the energy requirement for the spray driers. It is envisaged that the co-generation plants would be operational for approximately 90% of the time allowing for plant shutdown and time for maintenance.

This application of co-generation is used extensively in European ceramic tile manufacturing facilities where spray dryers are operated.

## 2.3 Key Components

The proposed plant expansion would require the construction of:

- A new factory building to incorporate Stages Five to Eight
- Additional storage bunkers for raw materials
- Additional storage silos for dry glazes
- Installation of four production lines and associated components
- Emission stacks
- Four co-generation plants
- Internal roadways and additional car parking
- New stormwater retention ponds and integration works, and
- Additional landscaping.

The general location for the proposed factory building for Stages Five to Eight and the location of existing infrastructure are provided in **Figure 2**. The building that would be constructed to accommodate Stages Five to Eight would be similar in scale and size of the existing building. Raw materials would be stored on the northern end of the facility, with the manufacturing process progressing south along the production line prior to dispatch.

The area separating the two buildings would be used for internal traffic movements. Trucks would travel between the two buildings to the existing site access on Racecourse Road.

### 2.3.1 Operation Hours

The expanded plant would continue to operate over a 24-hour period, 340 days per year. An annual shut down period is required to allow for plant maintenance.

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### 2.3.2 Staff

The Facility currently employs approximately 50 staff, the majority of which are process staff working on the production lines. The remaining staff are involved in management, administration, technical and sales/marketing. An additional 20 employees are likely to be engaged following the commencement of operation of Stages Three and Four (not included as part of this proposal). The proposed expansion (Stages Five to Eight) would employ 70 employees, resulting in a total workforce of approximately 140 employees.

### 2.3.3 Transportation of Materials

All transport to the expanded facility would be via road, as per the existing operation. Access to the site is via Racecourse Road, which intersects with the New England Highway to the north. Vehicles used for raw material delivery and product dispatch are semi-trailers and B-doubles. Further discussion relating to traffic and transportation is provided in **Section 7.8.6**.

Product dispatch occurs from the southern end of the plant, at the end of the process line. Tiles which are packaged in shrink wrapped pallets and placed on the trucks via the loading dock. The loading dock is an open area, with a retaining wall which allows the level loading of trucks. Two-way traffic then passes along the western boundary of the site. Stages Five to Eight would adopt the same loading procedure, however traffic would travel between to the two buildings to exit the site.

### 2.3.4 Stormwater Management

Surface stormwater is currently managed on-site through an integrated site water management system. Stormwater is collected from the impervious areas including roadways, car parks, roof areas and hardstand areas. Stormwater then flows in a southerly direction leaving the site via two outlets, one on the western boundary and the other in the south eastern corner.

On-site stormwater management was designed to have a minimal impact on the prevailing flow regime prior to the sites development. Stormwater is managed through a series of detention ponds which are connected by a series of grass swales. Grass swales are also located on either side of existing roadways.

Stormwater management for the expansion would be integrated into the existing system. The depth of existing detention basins would be increased to accommodate stormwater runoff from the building housing Stages Five to Eight. The roof of the new building would be designed to slope to the western side to allow stormwater to run into the existing detention basins. Stormwater leaving the site would continue to pass through the existing outlets. Additional detention basins would also be constructed if required.

## 2.4 Construction Details

### 2.4.1 Program of Works

The construction of Stages Five to Eight including the co-generation plants and associated infrastructure would be planned for commencement in 2011. It is anticipated that construction of these stages would be over an 18 month period.

### 2.4.2 Outline of Construction Methods

The construction of Stages Five to Eight would involve the following:

- Establishment of construction offices and parking
- Stripping of soils and vegetation within the construction footprint
- Bulk earthworks

- Laying of concrete foundations
- Construction of steel frame and colourbond cladding
- Installation of roofing including alsynite panels for natural lighting
- Incorporation of plant equipment within the building including storage areas, mills, driers and kilns, and
- Construction of internal roadways, stormwater detention basins and landscaping.

The majority of construction materials would be prefabricated offsite, delivered to site and assembled within the building. This limits the amount of construction activities required on site.

Construction machinery which would be required on site would include dozers, excavators, padfoot rollers, concrete trucks, drilling rigs, water cart, cranes and backhoes.

### **2.4.3 Construction Hours**

Construction would be undertaken from 7am to 4.30pm Monday to Saturday. No construction would be undertaken on Sundays or public holidays.

### **2.4.4 Peak Construction Workforce**

It is anticipated the peak construction workforce would occur during the construction of Stages Five to Eight. The construction workforce would be approximately 100 construction workers during the peak time and approximately 50 workers on average outside of peak times. Where possible, labour would be sourced locally.

### **2.4.5 Construction Traffic**

During peak construction times, workers would generate approximately 100 traffic movements per day. Parking would be provided on site or along Racecourse Road. Construction traffic would also generate approximately 60 truck movements for the delivery of various materials.

## **2.5 Decommissioning**

The proposed expansion of the facility is intended to have an operational life of 50 years.

### 3.0 Statutory Planning

#### 3.1 Introduction

There are four levels of legislation and environmental planning instruments that need to be considered for this proposal. They are:

- Commonwealth matters
- State matters, including the EP&A Act as well as State Environmental Planning Policies (SEPPs)
- Regional matters, and
- Local matters.

#### 3.2 Commonwealth Matters

Actions that may significantly affect matters of National Environmental Significance (NES) require approval from the Commonwealth under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*. The EPBC Act lists seven matters of NES which are considered in **Table 1** below:

**Table 1: Matters of National Environmental Significance**

Matter of NES	Commentary
World Heritage properties	There are no World Heritage properties in the vicinity of the proposal site.
National Heritage places	There are no National Heritage places in the vicinity of the proposal site.
Ramsar wetlands of international significance	There are no Ramsar wetlands in vicinity of the proposal site.
Threatened species and ecological communities	One threatened species has been previously recorded in the vicinity of the site. Previous investigations have not identified the presence of this species or the existence of potential habitat.
Migratory species	There are no migratory species associated with the proposal site.
Commonwealth marine area	There are no Commonwealth marine areas in the vicinity of the proposal site.
Nuclear actions (including uranium mining)	This action is not applicable to the proposal site.

The other relevant section of the EPBC Act requires Commonwealth approval for any activities that would, or are likely to have, a significant impact on Commonwealth land (Part 3, Division 2, section 26). The land on which the proposed expansion is to be constructed is not Commonwealth land. Nor is there any Commonwealth land within close proximity of the Facility that could be secondarily impacted by the proposed construction or operation of the proposal. As such, this section of the Act is not applicable.

### 3.3 State Matters

The governing legislation that will determine approval for the proposal is the *Environmental Planning and Assessment Act 1979* (EP&A Act). Within the planning framework there are a number of State Environmental Planning Policies (SEPPs) that are relevant to the proposal. These SEPPs are discussed below.

#### 3.3.1 State Environmental Planning Policy (Major Projects) 2005

*State Environmental Planning Policy (Major Projects) 2005* (SEPP 2005) identifies the types of development that the assessment and approval process under Part 3A of the EP&A Act applies.

Schedule 1 of SEPP 2005 identifies the major development classifications that require assessment and approval under Part 3A of the EP&A Act. Group 2 of Schedule 1 includes development classified as:

*9 Metal, mineral or extractive material processing, being:*

*Development that has a capital investment value of more than \$30 million or employs 100 or more people for any of the following purposes:*

*b) brickworks, ceramic works, silicon or glassworks or tile manufacture*

The proposal is expected to have a capital investment value of approximately \$100 million and is for the purposes of ceramic works. Therefore, as the proposal is of a kind described in Schedule 1 of SEPP 2005, Part 3A applies to the proposal.

#### 3.3.2 State Environmental Planning Policy (Infrastructure) 2007

Schedule 3 of this SEPP provides the Roads and Traffic Authority (RTA) with the opportunity to provide feedback on certain traffic-generating developments before a consent authority makes a determination about a development application.

Schedule 3 lists the types of development that this policy applies to, including "industry" with a site size of 20,000 m<sup>2</sup> with access to any road, or of 5,000 m<sup>2</sup> "with access to classified road or to road that connects to classified road (if access within 90m of connection, measured along alignment of connecting road)".

The Environmental Assessment (EA) to be prepared for the proposal would therefore be forwarded to the NSW RTA and Maitland City Council for comment.

#### 3.3.3 State Environmental Planning Policy (SEPP) 33 – Hazardous and Offensive Development

SEPP 33 was designed to ensure that sufficient information is provided to consent authorities to determine whether a development is hazardous or offensive. Conditions can then be imposed on the development to reduce or minimise adverse impacts. Any development application for a potentially hazardous development must be supported by a Preliminary Hazard Analysis (PHA).

The document *Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines* was prepared by the Department of Urban Affairs and Planning in 1994 to provide assistance in implementing SEPP 33. The Guidelines recommend a 'risk screening' method for determining whether a proposal is hazardous, and provide guidance on assessing potentially offensive development proposals.

The proposal is not considered potentially hazardous or potentially offensive (refer **Section 8.1**), nonetheless the procedures and standards relating to dangerous goods handling would be implemented at the site.

### 3.3.4 State Environmental Planning Policy (SEPP) 44 – Koala Habitat

The objectives of this SEPP are to:

*“encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline:*

- a) *by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat, and*
- b) *by encouraging the identification of areas of core koala habitat, and*
- c) *by encouraging the inclusion of areas of core koala habitat in environment protection”*

The local government area of Maitland is listed in Schedule 1 of the SEPP, an area where there is potential for koala habitat. The site was assessed for the potential of koala habitat as part of the EIS prepared by Parsons Brinkerhoff in 2002. The assessment concluded that the site did not provide any potential koala habitat; therefore it is considered that this SEPP does not apply.

### 3.3.5 State Environmental Planning Policy (SEPP) 55 – Remediation of Land

SEPP 55 promotes the remediation of contaminated land to reduce the risk of harm to human health or other environmental systems. Clause 7 of SEPP 55 requires a consent authority to consider whether the land is contaminated and whether it is suitable (or can be made suitable) for the proposed development.

A Phase 1 Environmental Site Investigation was conducted as part of the 2002 EIS for the Facility. This assessment concluded that there had been limited uses of the site with potential to cause contamination and that the site had primarily been used for grazing. The potential for contamination resulting from adjoining properties was considered to be low.

## 3.4 Regional Matters

The Regional Environmental Plan (REP) of relevance to the subject site is Hunter REP 1989. The aims of the Hunter REP are:

- (a) *to promote the balanced development of the region, the improvement of its urban and rural environments and the orderly and economic development and optimum use of its land and other resources, consistent with conservation of natural and man made features and so as to meet the needs and aspirations of the community,*
- (b) *to co-ordinate activities related to development in the region so there is optimum social and economic benefit to the community, and*
- (c) *to continue a regional planning process that will serve as a framework for identifying priorities for further investigations to be carried out by the Department and other agencies.*

The objectives of the Hunter REP in relation to industrial development are:

- (a) *to ensure that sufficient zoned and serviced industrial land is provided in locations appropriate to the needs of industry, while ensuring protection of the environment, and*
- (b) *to promote the distribution of employment in secondary industry in a manner compatible with the availability of services and distribution of population.*

The objective of Part 7 (Division 1) of the Hunter REP is to control development such that air, noise and water pollution are minimised. Therefore the proposal would need to satisfy surrounding threshold limits for air, noise and water pollution. Given these limits are likely to be adequately met; the proposal is likely to be consistent with the relevant objectives and principles of the Hunter REP.

In addition to the Hunter REP 1989, the Lower Hunter Regional Strategy was released in 2006. The aims of the strategy are to:

- *Ensure that sufficient employment lands are available to cater for 66,000 new jobs*
- *Plan for additional 160,000 residents and 115,000 new dwellings*
- *Establish important green corridors, to protect and even enhance the Region's strong environmental and biodiversity assets, and*
- *Reinforce the role of the Newcastle City Centre as the Regional City.*

The strategy states that the economic challenges for the region are to:

- *Maximise the economic opportunities associated with the Region's competitive advantages, in particular its economic infrastructure and specialised centres*
- *Ensure sufficient employment lands in appropriate locations, including within centres and as traditional industrial land, to provide sufficient capacity to accommodate growth in existing and emerging industries and businesses*
- *Maintain or improve the employment self sufficiency of the region, and*
- *Ensure activity within the Lower Hunter complements rather than competes with the economies and communities of adjoining regions.*

The proposed expansion of NCI's facility would assist the region generate direct and indirect employment opportunities. The proposed expansion would be situated in a defined industrial estate and would have a negligible effect on the biodiversity of the region. The Lower Hunter Regional Strategy's aims and stated economic challenges would be supported by the proposed expansion.

### **3.5 Local Matters**

The site is located within the Maitland Local Government Area, and is subject to the provisions of the Maitland Local Environmental Plan (LEP 1993). The map for LEP 1993 shows the site is located within the 4(a) – General Industrial zone. The objectives of the 4(a) zone are:

- a) *To set aside certain land for the purpose of general industry within convenient distances of the urban centres of the City.*
- b) *To allow commercial and retail development for:*
  - i) *use ancillary to the main use of land within the zone;*
  - ii) *the display and sale of bulky goods; and*
  - iii) *the day-today needs of occupants and employees of the surrounding industrial area.*
- c) *To ensure that industrial development creates areas which are pleasant to work in and safe and efficient in terms of transportation, land utilisation and service distribution.*

Permissible development within zone 4(a) includes any development other than those listed in Item 5 (development which is prohibited). The proposal is not a prohibited development, and therefore would be permissible under this zone.

### **3.6 Other Approvals Required**

Schedule 1 of the *Protection of the Environment Operations Act 1997* (POEO Act) outlines activities that require an Environment Protection Licence (EPL). Clause 7 of Schedule 1 indicates that ceramic works with a capacity to produce more than 15,000 tonnes per annum must apply for a license to operate. This will continue to apply as ceramic tile production at the NCIA facility is planned to increase. The existing NCIA facility operates under EPL 11956. EPL 11956 indicates that a maximum of 50,000 – 200,000 tonnes of ceramic tiles per year can be manufactured. The current EPL would require modification to reflect the proposed increase in production.

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## 4.0 Stakeholder Involvement

Extensive consultation was undertaken with the community, government agencies and other stakeholders during preparation of the 2002 EIS for the Facility. Community consultation included advertising in local newspapers, distributing an information newsletter, and holding a community information evening.

Preliminary consultation was undertaken with the Department of Planning (DoP) to discuss the proposal. The aim of the meeting was to:

- Assess the planning feasibility of the proposal
- Confirm areas of initial interest regarding the proposal
- Determine possible issues or impediments, and
- Determine the appropriate course to obtain planning consent.

Further consultation would be conducted with regulatory authorities, the community and neighbouring industry during preparation of the EA. The following agencies are likely to be consulted:

- DECC
- RTA
- Maitland City Council, and
- NSW Department of Water and Energy.

These agencies would be invited to articulate their requirements relating to their statutory responsibilities that need to be considered in the EA.

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## 5.0 Physical and Pollution Effects

### 5.1 Introduction

The potential physical or pollution effects associated with the proposal have been identified as air quality, surface water, soils and noise. This section of the report will describe the existing conditions as they prevail at the Facility. The primary focus of this section is regarding potential air quality impacts associated with the proposal. Other effects have been determined as having a less significant impact.

This assessment will assist in the environmental risk assessment as discussed in **Section 9.0** and identify those issues which are to be addressed as part of the EA.

### 5.2 Air Quality

#### 5.2.1 Baseline Conditions

Air quality in the local Rutherford area would primarily be impacted by regional particulate transport (from Upper Hunter mine activities), motor vehicle emissions, light industry and residential activities. Ambient air conditions may also be affected by emissions from more remote sources, including the industrial areas surrounding Newcastle, and the heavy industry and power stations located in the Hunter Valley.

The closest Department of Environment and Climate Change (DECC) monitoring station is situated at Beresfield, approximately 17 km southeast of the NCIA facility. This monitoring station provides background concentrations of pollutants in the proposal area, including oxides of nitrogen (NO<sub>x</sub>), particulate matter and sulphur dioxide. All measured air pollutant concentrations were generally below DECC assessment criteria, with the exception of short term PM<sub>10</sub> criteria which was observed to exceed the criteria on multiple events for each monitored year.

NCIA currently monitor particulate levels and fluoride levels at the existing facility under the conditions of EPL 11956. These monitoring results generally confirm the observed trends outlined above from a particulate perspective. Monitored Fluoride concentrations around the NCIA facility were generally low, with no exceedences of the DECC criteria noted between 2004 and late 2007 (refer Predictive Air Quality Monitoring Report, HLA, 19 September 2007). No DECC data was available for comparison with monitored Fluoride concentrations.

A Predictive Air Quality Assessment was conducted in 2007 prior to constructing Stage 2 of the Facility. The predictive modelling found that the Facility (including the operation of Stage 2) would comply with all relevant ground level pollutant criteria when considered in isolation from the surrounding environment. When considered cumulatively, ground level concentrations of particulate matter were predicted to exceed the DECC 24 hour criteria. These exceedences were however, due to elevated short term background pollutant levels in the environment surrounding the Facility, rather than particulate contributions from NCIA. Particulate levels are unlikely to be high enough to be practically discerned from the background particulate concentration.

#### 5.2.2 Potential Future Impacts

Emissions from the manufacturing process include oxides of nitrogen, hydrogen fluoride, particulate matter, sulfur dioxide, sulfuric acid mist and trace elements including heavy metals. Particulates are generated by a number of processing steps, including delivery of raw materials, loading and unloading of the mill, pressing and drying the tiles, glaze preparation and firing the tiles in the kilns.

To minimise air quality impacts from the operation of the expanded facility, air control equipment would focus on the capture of particulate matter and fluoride and ensuring acceptable dispersion of nitrogen dioxide. All operations involving particulate emissions would take place inside the building, and fabric filters would be used to control residual emissions of particulate matter. Other emissions would be discharged through stacks aimed at minimising ground level pollutant concentrations.

Odour impacts are known to be a concern within the Rutherford local area. However the proposal is not expected to cause any adverse odour impacts as there is no significant odour generating materials or activities occurring on site.

An air quality assessment would be prepared for the EA. The assessment would identify sources of air emissions and assess the potential impacts on sensitive receptors from the operation of the final upgraded stage of the facility.

The control of dust emissions during construction would be managed by procedures outlined in a Construction Environmental Management Plan (CEMP) prepared for the proposal.

## **5.3 Water Quality**

### **5.3.1 Baseline Conditions**

The proposal site is situated within the Stony Creek catchments. A Water Management Study was undertaken in 2002 as part of the EIS for the Facility. The proposal site is generally flat, with surface runoff draining to an existing gully situated in the south-eastern corner of the site. The water requirements of the plant are either reticulated through the process or released as steam. The site is not subject to regional flooding from Stony Creek or its tributaries.

The main threats to water quality include high levels of nutrient, salt and sediment loads, particularly in Wallis and Fishery Creek (State of Environment Report 2005/2006, Maitland City Council).

### **5.3.2 Potential Impacts**

The introduction of impervious surfaces (roof, road, car park and hardstand areas) would result in an increase in the volume of runoff from the site. The construction of formalised drainage paths would also increase peak flows in a 100 year average recurrence interval storm event. Potential issues may also relate to heavy metals, oil and grease from road ways and car parks. Water quality during the construction phase would be managed through the CEMP. The management of stormwater during operation would be in accordance with existing site practices. This would include unloading and storage of raw materials within the building to ensure no spills from the site would occur. Water used for process requirements would be discharged in the form of steam to the atmosphere. The only water leaving the building would be discharged to the sewer from the staff amenities.

Control measures would be implemented to prevent pollution of waters. A series of water detention basins connected by grass swales is currently provided for the management of stormwater. The depth of existing detention basins would be increased to accommodate stormwater runoff from the building housing Stages Five to Eight. The roof of the new building would be designed to slope to the western side to allow stormwater to run into the existing detention basins. These measures would reduce peak stormwater flows and provide water quality treatment.

Water quality impacts from the construction and operation of the proposed expansion would be addressed in the EA.

## **5.4 Geology and Soils**

### **5.4.1 Baseline Conditions**

The proposal site is located in an area of rolling low hills on Permian sediments. The geology of the surrounding area is characterised predominantly by Branxton Formation of the Maitland Group, including

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sandstone, siltstone, conglomerate and erratics. The soils of the area are generally of moderate to high erodibility.

A Phase 1 Environmental Site Investigation was undertaken for the site in 2002 by Parsons Brinckerhoff. Previous land uses identified are unlikely to have had an impact on soil quality. The proposed site has primarily been used for grazing, and a review of aerial photographs indicated that the land has remained undeveloped. Potential contamination resulting from adjoining properties was considered to be low.

#### **5.4.1 Potential Impacts**

The proposal has the potential to cause erosion and sedimentation, particularly during the construction period. The CEMP prepared for the proposal would include erosion and sediment control measures. Mitigation measures would be included in the final design and operation of the facility as required.

### **5.5 Noise and Vibration**

#### **5.5.1 Baseline Conditions**

The proposal is to be located within the Rutherford Industrial Estate. A Noise Impact Assessment was conducted in 2002 as part of the EIS for the facility. Sensitive receptors to noise from the site include residential and rural-residential properties in Rutherford and along Wollombi Road, Telerah.

Background levels at Rutherford were mainly influenced by traffic on the New England Highway and, to a lesser extent and only during the day, by nearby industrial properties within the Rutherford Industrial Estate. Background levels at Telerah were primarily influenced by birds, insects and traffic on Wollombi Road during the day and by the distant New England Highway during the night, with no significant noise from Rutherford Industrial Estate.

#### **5.5.2 Potential Impacts**

Construction activities and future operation of the expanded facility has the potential to create noise through the use of equipment and increased traffic (refer **Section 8.6.**) Noise generating equipment would be located in various areas of the manufacturing building, and forklifts, loaders and trucks would operate inside and outside the building as required.

Noise reduction measures would be applied to the major contributing plant noise sources on the site. A noise impact assessment would be prepared for the EA, which would develop noise goals for the proposal, assess the potential impacts (site-specific and cumulative) from the proposal and identify mitigation measures where required.

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## 6.0 Biological Effects

### 6.1 Introduction

The potential biological effects associated with the proposal relate to both indigenous flora and fauna. This section discusses the existing conditions as they prevail at NCIA's facility. It is concluded that potential impacts to flora and fauna are not significant.

This assessment will assist in the environmental risk assessment as discussed in **Section 9.0** and identify those issues which are to be addressed as part of the EA.

### 6.2 Flora

#### 6.2.1 Baseline Conditions

The proposed site is currently unoccupied by buildings or structures. It is covered with native grasses, with one small patch of native vegetation cover (mixed eucalypt forest) on the southern boundary of the site.

The DECC Wildlife Atlas lists two threatened flora species that may be found in the Maitland Local Government Area (LGA). A search of the EPBC Protected Matters database noted five threatened plant species and one threatened ecological community within the Maitland LGA.

A flora and fauna assessment was undertaken on the site in 2002 as part of the Environmental Impact Statement (EIS) prepared for the facility. There were no threatened plant species identified on the site during the field survey.

#### 6.2.2 Potential Impacts

It is unlikely that the proposed works would have a significant effect on threatened flora species. The proposal would require the removal of grass and surface soils. Measures would be incorporated to minimise potential impacts, including an erosion and sediment control plan, stormwater management measures, and planting of indigenous flora species.

### 6.3 Fauna

#### 6.3.1 Baseline Conditions

The DECC Wildlife Atlas lists a number of threatened fauna species that may be found in the Maitland LGA. A search of the EPBC Protected Matters database noted one Wetland of International Significance (RAMSAR Sites), one threatened ecological community, 12 threatened fauna species and 15 migratory species within the Maitland LGA. The Hunter Estuary Wetlands are located more than 20 kilometres from the proposal site and are unlikely to be affected by the proposal.

The previous flora and fauna assessment undertaken in 2002 at the NCIA site identified only one threatened fauna species – the Grey-crowned babbler (*Pomatostomus temporalis temporalis*). An eight part test was conducted, focusing on the development as a whole and the threatened Grey-crowned babbler, and concluded that the Proposal was unlikely to significantly impact threatened species. The proposal would not affect a significant area of known habitat for the Grey-crowned babbler, and the proposal site lacked many key habitat requirements needed by threatened species known to the local area.

### 6.3.2 Potential Impacts

The proposal is unlikely to have a significant effect on fauna. The site is already highly modified and, as such, contains little habitat value for native species. The 2002 flora and fauna assessment conducted for the entire site concluded that the proposal would not have any ecological impact on local populations of significant flora and fauna species, would not adversely affect wetlands or open space bushland and would not affect koala habitat.

## 7.0 Resource Implications

### 7.1 Introduction

This section discusses those issues as associated with the proposal that may have an impact on the availability or supply of resources. This has been presented in terms of community, transportation and waste management resources. It is concluded that potential impacts to resources are not significant.

This assessment will assist in the environmental risk assessment as discussed in **Section 9.0** and identify those issues which are to be addressed as part of the EA.

### 7.2 Community

Public access to the site is currently restricted, and there would be no negative impact to public access during construction or operation of the Facility. Furthermore, the proposed works would not result in a significant use of community resources.

When fully operational, the Facility would employ approximately 140 staff, including management and administration, sales and marketing, laboratory and research, technical high skills (such as trades) and process controllers. The additional staff would be primarily sourced from existing local labour, therefore no increase in local services and amenities is anticipated. The proposal would generate follow on employment, including suppliers to the facility, ancillary service providers, and the construction team. The proposal would also provide a local source of ceramic tiles and create export opportunities for Australia.

The expanded facility is to be located on land that is currently zoned for general industry, as discussed in **Section 8.4**. The proposal is consistent with the land use and would not impact on any community land.

### 7.3 Transportation

The proposal would require the use of public roads. The New England Highway is the main arterial highway connecting Newcastle and Brisbane. Racecourse Road and Kyle Street provide access to Rutherford Industrial Estate, forming a loop with the New England Highway. Both of these routes are approved routes for B-double vehicles. Access to the site would be directly from Racecourse Road.

During construction, it is estimated that a maximum of 100 construction workers would be employed at the site. Construction would be undertaken during the hours 7:00 am to 4:30 pm Monday to Saturday. Construction workers would generate approximately 100 traffic trips each day, and there would be a maximum of approximately 60 truck trips per day during the construction period.

During operation, the proposal would generate traffic relating to trucks delivering raw materials and dispatching tile products, employee work trips, and other delivery and business trips. Current car passenger unit trips are approximately 51 per day with approved stages three and four potentially adding 31 trips per day once operational. It is estimated that a maximum of around 164 trips per day in car passenger units would be generated by the proposal. The number of truck trips during the peak hour would be relatively small (12 to 16 trips per day).

### 7.4 Waste Management

Construction waste would include steel and timber off cuts, packaging, and general building wastes. Construction waste would be collected for disposal by a licensed contractor.

Waste from the operation of the Facility would include broken fired tiles, packaging waste, general domestic waste and consumables. Where possible, broken tiles would be sold for reuse in mosaics. Raw material waste from un-fired tiles would be reused in the manufacturing process. Dust collected from fabric filters would be mixed with water and reused in the manufacturing process. Packaging waste and general domestic waste would be reused or recycled where possible. Waste from consumables would be a relatively minor component of the waste generated, and would be disposed of to a licensed disposal or recycling facility by a licensed commercial contractor.

## 8.0 Community Effects

### 8.1 Introduction

The potential for the proposal to impact on the community is discussed in this section. The issues that have been assessed include hazards and risk, social and economic, heritage, visual and traffic. Of these issues discussed, it has been determined that the proposal would not have a negative impact in regards to hazards, heritage or visual. The estimated increase in traffic would require further assessment in the EA. The proposal would provide a positive benefit to the community through the provision of additional employment opportunities.

This assessment will assist in the environmental risk assessment as discussed in **Section 9.0** and identify those issues which are to be addressed as part of the EA.

### 8.2 Hazards and Risks

Materials used on site that are potentially hazardous are natural gas, diesel and lubricating oils.

Natural gas is classified as a class 2.1 (flammable gases) dangerous good. When fully operational, it is estimated that 1,646,000 gigajoules of natural gas would be consumed by the facility per annum. Natural gas would be transported to the facility in an underground pipeline and would not be stored on site. Therefore, the threshold levels detailed in the Department of Planning's guidelines *Applying SEPP 33 – Hazardous Industry* would not be exceeded at the facility.

Diesel is a class C1 combustible liquid but is not classified within the Dangerous Goods Code. Approximately 2000 litres of diesel would be consumed per week, and would be stored in a bunded 5000 litre above ground tank located on the eastern wall at the northern end of the building.

Lubricating oil is a class C2 combustible liquid but is not classified within the Dangerous Goods Code. Small amounts would be used on site, and stored in drums.

The class C1 and C2 materials would be stored in separate bunds or within storage areas where they are the only flammable liquid present. Therefore, in accordance with the *Applying SEPP 33* guidelines, diesel and lubricating oils stored on site would not be considered potentially hazardous.

The proposal does not exceed any of the dangerous goods storage or transportation thresholds detailed in the *Applying SEPP 33* guidelines. Furthermore, the site is not located adjacent to sensitive receptors, such as schools or hospitals. The proposal is therefore not considered potentially hazardous. The site currently holds an Environmental Protection License (EPL) and employs effective pollution control equipment and is therefore not considered to be offensive.

### 8.3 Social and Economic

Social and economic benefits associated with the proposal include the direct employment of an additional 70 employees at the Facility, the generation of follow on employment such as transportation companies and bulk material suppliers and the substitution of ceramic tile imports and the creation of export opportunities for Australia.

### 8.4 Heritage and Culture

Indigenous and non-indigenous heritage values of the site were investigated in 2002 as part of the EIS prepared for the existing facility. None of the items listed on the *National Parks and Wildlife Service Aboriginal Heritage Information Management System* were located within the site. Consultation was undertaken with the Mindaribba Local Aboriginal Lands Council during preparation of the EIS.

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There were no listed non-indigenous heritage items known within the study area. Previous archaeological investigations undertaken within the Rutherford Industrial Estate identified eight aboriginal sites and three Potential Archaeological Deposits (PADs). None of these aboriginal sites or PADs were located within the proposal site, the closest being more than 150 metres north-east of the site boundary.

## **8.5 Land Use and Visual**

The Facility would be located on land that is designated as suitable for general industry under the Maitland LEP 1993. The site is located within the Rutherford Industrial Estate and the visual appearance of the proposed facility would be compatible with the industrial context of the site.

Measures would be implemented to reduce potential visual impacts of the proposal. External building construction materials would be coloured dull greys and dull grey-greens to blend into the surrounding environment. Landscaping would be undertaken to screen outside views and reduce the scale of the building, and would be integrated with existing plantings.

## **8.6 Traffic**

During the construction phase, traffic movements would consist of approximately 100 traffic trips each day generated by construction workers, and approximately 60 truck trips per day.

Once fully operational, traffic movements would consist of trucks delivering raw material or distributing tile products, employee work trips, and other delivery and business trips. There would be a maximum of approximately 164 peak hour trips per day from all stages one to eight, including between 12 - 16 peak hour truck trips per day.

## 9.0 Environmental Risk Appraisal

### 9.1 Identification of Issues

As identified in **Sections 5 – 8** of this report, the main issues associated with the proposal are:

- Air quality
- Noise
- Transportation, and
- Traffic.

Other issues which were considered in context of the proposal included soils and geology, water quality, flora and fauna; community; transportation; waste management; hazards and risk; heritage and culture; land use and visual.

### 9.2 Prioritisation of Issues

#### 9.2.1 Approach

The prioritisation of issues for the proposal was based on the need to recognise that a higher degree of assessment is required for the issues with the highest severity and greatest possible consequences.

**Table 2** shows the issues prioritisation matrix used to identify priorities. Each issue was given a ranking between one and three for the severity of effects and the perceived consequence of those effects if left unmanaged. These two numbers were added together to provide a numerical ranking for the issue that was used to categorise each issue into high, medium and low priorities.

**Table 2: Issues Prioritisation Matrix**

Severity of Effects	Consequence of Unmanaged Effects		
	3 High	2 Medium	1 Low
1 Low	4 (Medium)	3 (Low)	2 (Low)
2 Medium	5 (High)	4 (Medium)	3 (Low)
3 High	6 (High)	5 (High)	4 (Medium)

#### 9.2.2 Assessment

The ranking of the environmental issues associated with the proposal is shown in **Table 3**. The allocation of risk is based upon the following considerations:

##### **Severity of Risk**

Low: localised implications; imperceptible or short term cumulative impacts.

Medium: regional implications; modest or medium term cumulative impacts.

High: inter-regional implications; serious or long term cumulative impacts.

##### **Consequences of Unmanaged Effects**

Low: minor environmental change; offsets readily available.

Medium: moderate adverse environmental change; offsets available.

High: important adverse environmental change, offsets not readily available.

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It should be noted that the rankings were determined in the absence of the proposed mitigation measures and design features.

**Table 3: Prioritisation of Environmental Issues**

Issue	Severity	Consequence	Priority
Air quality: Emissions of particulate and hydrogen fluoride.	2	3	5 (High)
Air Quality: Emissions of other oxides of nitrogen and sulphur dioxide.	2	2	4 (Medium)
Water quality: Effects on surface water.	1	2	3 (Low)
Geology and Soils: Impacts during construction and operation.	1	1	2 (Low)
Noise: Cumulative emissions.	2	2	4 (Medium)
Noise: Point source emissions.	1	2	3 (Low)
Biological: Impact to existing flora and fauna.	1	1	2 (Low)
Community: Impacts to community resources.	1	2	2 (Low)
Transportation: Impacts during construction.	2	2	4 (Medium)
Transportation: Impacts during operation.	2	2	4 (Medium)
Waste: Construction and Operation.	1	1	2 (Low)
Hazards: Potentially hazardous or Offensive development.	1	2	3 (Low)
Social Economic: Impact to local economy and resources.	1	1	2 (Low)
Heritage and culture: Impacts to items of archaeological significance.	1	2	3 (Low)
Land Use: Impact to future land use.	1	1	2 (Low)
Visual: Impact to residents and workers in the vicinity.	1	1	2(Low)
Traffic: Impacts from construction.	2	2	4 (Medium)
Traffic: Impacts from operation.	2	2	4 (Medium)

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### 9.3 Scoping of Issues

The above analysis of potential issues related to the proposed facility confirms the key issues that would be subject to detailed assessments. The key issues are:

- Air Quality – particulate and gaseous emissions
- Noise – cumulative
- Transportation – construction and operation, and
- Traffic– construction and operation.

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## 10.0 Findings

This EASR has undertaken an initial appraisal of the potential environmental impacts associated with the proposal, which involves the expansion of the existing ceramic tiles manufacturing facility.

The proposal would embrace new technology in the tile manufacturing industry and would facilitate increased production in a growing market.

The proposal includes the expansion of the Facility to include four additional production lines, known as Stages Five to Eight, as well as the construction and operation of four co-generation plants and associated infrastructure. The increase in production is to meet predicted future demand in ceramic tile products both domestically and internationally. Due to technology improvements, the manufacturing process for Stages Five to Eight would be slightly different to the manufacturing process used in Stages One to Four.

The EA for the proposed development would focus on the key environmental issues and potential impacts identified in **Sections 5 – 8** of the EASR, being:

- Air quality
- Noise
- Transportation, and
- Traffic.

These issues would be considered through specialist assessment included in the EA. The results of investigations of other environmental issues, such as water quality, soils, flora and fauna, hazards and heritage, would also be considered in the EA, but would require a lower level of assessment than the key environmental issues.

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## **Appendix A**

### **NCIA Consent Conditions**

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**DETERMINATION OF A DEVELOPMENT APPLICATION FOR STATE SIGNIFICANT,  
DESIGNATED AND INTEGRATED DEVELOPMENT UNDER SECTION 80 OF  
THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979**

I, the Minister for Infrastructure and Planning, under Section 80 of the *Environmental Planning and Assessment Act 1979* ("the Act"), determine the development application ("the Application") referred to in Schedule 1 by granting consent subject to the conditions set out in Schedule 2.

The reason for the imposition of conditions is to:

- a) minimise any adverse environmental impacts associated with the development;
- b) provide for the on-going environmental management of the development; and
- c) provide for regular monitoring and reporting on the development.

Craig Knowles MP  
**Minister for Infrastructure and Planning**  
**Minister for Natural Resources**

Sydney,

2003

File No. S02/01183

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**SCHEDULE 1**

**Application made by:** National Ceramic Industries Australia Pty Ltd ("the Applicant");

**To:** The Minister for Planning;

**In respect of:** Lot 1223 DP 1017710 and Lot 405 DP 881621, Racecourse Road, Rutherford, Maitland local government area;

**For the following:** The construction and operation of a ceramic tile manufacturing facility ("the development"). The scope of the development is described in the document titled *Ceramic Tile Manufacturing at Rutherford NSW – Environmental Impact Statement*, prepared by Parsons Brinckerhoff Australia Pty Ltd and dated 10 December 2002, including:

- civil works such as clearing and grading and construction of erosion and sediment control infrastructure;

- construction of the building in two stages and the building fitout in four stages, including -
  - installation, commissioning and operation of one spray drier, one clay mill and two kilns with each kiln built at approximately 8 month intervals and the capacity to produce 3.2 million square metres of ceramic tiles each per annum (fitout stages 1 and 2)
  - installation, commissioning and operation of a second spray drier, second clay mill and two more kilns built at approximately 8 month intervals and the capacity to produce 3.2 million square metres of ceramic tiles each per annum (fitout stages 3 and 4)

**Development Application:**

Integrated DA No. 449-12-2002-i, lodged with the Department of Planning on 16 December 2002, accompanied by *Ceramic Tile Manufacturing at Rutherford NSW – Environmental Impact Statement* prepared by Parsons Brinckerhoff Australia Pty Ltd and dated 10 December 2002;

**Modifications:**

MOD 1 - Amendment of maximum allowable discharge concentration limits for the dryer stack (D1), kiln exhaust stack (KP1) and hot air cooler stack (HAC1).

MOD 2 – Correction to maximum allowable discharge concentration limit for hot air cooler stack (HAC1) as modified by MOD 1 dated 4 March 2008.

MOD 3 – Amendment of maximum allowable discharge concentration limits for the dryer stack (D2), kiln exhaust stack (KP2) and hot air cooler stack (HAC2).

**State Significant Development:**

Under section 76A(7) of the Act, the proposed development is classified as State significant development because it is a type of development (metals, minerals or extractive materials processing) listed in Schedule 1 of *State Environmental Planning Policy No. 34 – Major Employment-Generating Industrial Development* and has a capital investment in excess of \$20 million.

**BCA Classification:**

Class 5 – Office  
Class 8 – Ceramic Tile Factory

**Note:**

- 1) To ascertain the date upon which this consent becomes effective, refer to section 83 of the Act.
- 2) To ascertain the date upon which this consent is liable to lapse, refer to section 95 of the Act.
- 3) If the Applicant is dissatisfied with this determination, section 97 of the Act grants him or her a right of appeal to the Land and Environment Court, which is exercisable within 12 months of receiving notice of this determination.

## SCHEDULE 2

In this consent, except in so far as the context or subject-matter otherwise indicates or requires, the following terms have the meanings indicated:

Act	<i>Environmental Planning and Assessment Act, 1979</i>
AEMR	Annual Environmental Management Report
Applicant	National Ceramic Industries Australia Pty Ltd
ARI	Average recurrence interval
BCA	Building Code of Australia
ceramic tile manufacturing facility	the development to which this consent applies
commissioning	any activity, prior to the commencement of operation of the ceramic tile manufacturing facility, with the aim of testing or verifying any component of the plant, but without the production, or intended production, of commercial quantities of ceramic tiles
construction	any activity requiring a Construction Certificate, the laying of a slab or significant excavation work
Council	Maitland City Council
dB(A)	decibel (A-weighted scale)
Department	NSW Department of Planning
Director-General	Director-General of the NSW Department of Urban and Transport Planning, or delegate
DLWC	NSW Department of Land and Water Conservation
dust	any solid material that may become suspended in air
EIS	Environmental Impact Statement for the ceramic tile manufacturing facility entitled <i>Ceramic Tile Manufacturing Facility at Rutherford – Environmental Impact Statement</i> , dated 10 December 2002 and prepared by Parsons Brinckerhoff Australia Pty Ltd (PB).
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence issued under the <i>Protection of the Environment Operations Act, 1997</i>
L <sub>Aeq</sub> (15 minute)	equivalent average sound pressure level that is measured over a 15 minute period
Minister	NSW Minister for Infrastructure and Planning, or delegate
operation	any activity that results in the production, or intended production of commercial quantities of ceramic tiles
Principal Certifying Authority	the Minister or an accredited certifier, appointed under section 109E of the Act, to issue a Part 4A Certificate as provided under section 109C of the Act
Regulation	<i>Environmental Planning and Assessment Regulation, 2000</i>
site	the land to which this consent applies
stage 1	works as described in section 4.12 of the EIS
stage 2	works as described in section 4.12 of the EIS
stage 3	works as described in section 4.12 of the EIS
stage 4	works as described in section 4.12 of the EIS
utility	any infrastructure or service associated with water supply, sewerage, electricity supply, telecommunications or gas supply

## 1. GENERAL

### Obligation to Minimise Harm to the Environment

- 1.1 The Applicant shall implement all practicable measures to prevent or minimise any harm to the environment that may result from the construction, commissioning and operation of the ceramic tile manufacturing facility.

### Scope of Development

- 1.2 <sup>1</sup>The Applicant shall carry out the development generally in accordance with:
- a) Development Application No. 449-12-2002-i, lodged with the former Department of Planning (now Department of Urban and Transport Planning) on 16 December 2002;
  - b) *Ceramic Tile Manufacturing Facility at Rutherford NSW – Environmental Impact Statement* prepared by Parsons Brinckerhoff Australia Pty Ltd and dated 10 December 2002;
  - c) additional information supplied to the Department from Parsons Brinckerhoff Australia Pty Ltd regarding noise and air quality impacts and dated 24 January 2003;
  - d) additional information supplied to the Department from Parsons Brinckerhoff Australia Pty Ltd regarding hazards, traffic, and flora and fauna impacts, and water reuse and dated 30 January 2003;
  - e) additional information supplied to the Department from Parsons Brinckerhoff Australia Pty Ltd regarding fluoride emissions and dated 10 April 2003;
  - f) MOD 1 dated 6 November 2007 and accompanying Air Quality Mitigation Study prepared by HLA ENSR and dated 7 September 2007;
  - g) MOD 2 dated 15 April 2008;
  - h) MOD 3 dated 5 May 2008; and
  - i) the conditions of this consent.

In the event of an inconsistency between a condition of this consent and the documents listed from a) to h) above, the condition of consent shall prevail to the extent of the inconsistency.

- 1.3 At the conclusion of all construction works, the ceramic tile manufacturing facility shall be limited to the production of 12.8 million square metres of ceramic tiles per annum.

Note: The capacity of the ceramic tile manufacturing facility at the completion of each stage of construction shall be consistent with that described in the EIS.
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### Staging of Works

- 1.4 Prior to the commencement of construction of stages 2, 3 and 4 of the ceramic tile manufacturing facility, the Applicant shall submit for the approval of the Director-General, a predictive air quality assessment for the operation of the stage of the ceramic tile manufacturing facility to be constructed. The predictive air quality assessment shall:
- a) utilise the findings of performance monitoring and verification required under condition 5.6 of this consent, and any Air Quality Mitigation Study prepared in accordance with condition 5.7, to predict the air quality performance of the stage of the ceramic tile manufacturing facility to be constructed. Where performance monitoring and verification has yet to be undertaken (ie within 90 days of the commencement of operation of the current stage of the ceramic tile manufacturing facility), the Applicant shall undertake equivalent performance monitoring and verification to satisfy this condition;
  - b) employ contemporaneous background air quality data, representative of the background air quality likely to be experienced during the operation of the stage of the ceramic tile manufacturing facility to be constructed. Depending on the

<sup>1</sup> Incorporates an EPA General Term of Approval (A1.1)

- period since undertaking performance monitoring and verification required under condition 5.6 of this consent, background air quality data may or may not be the same as that applied to the performance monitoring and verification. The Applicant shall provide justification for the background air quality data employed;
- c) assess the air quality performance of the stage of the ceramic tile manufacturing facility to be constructed in accordance with *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2001);
  - d) detail additional air emissions mitigation measures to be applied to the stage of the ceramic tile manufacturing facility to be constructed, in the event that the air quality criteria in *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2001) are predicted to not be met.

The Applicant shall not commence construction of the relevant stage of the ceramic tile manufacturing facility until it has received the Director-General's written approval of the predictive air quality assessment.

Note: Air quality impacts associated with the ceramic tile manufacturing facility have been assessed to be a key issue in relation to environmental planning and assessment. A stringent feed-forward/ feedback mechanism (conditions 1.4, 5.6 and 5.7 of this consent) has been required to confirm the air emissions performance of the ceramic tile manufacturing facility at each stage (feedback), and to use established monitoring data to demonstrate acceptable air emissions performance prior to the progression to each subsequent stage of the facility (feed-forward). This concept is illustrated in Attachment A.

### **Provision of Documents**

- 1.5 Where practicable, the Applicant shall provide all documents and reports required to be submitted to the Director-General under this consent in an appropriate electronic format. Provision of documents and reports to other parties, as required under this consent, shall be in a format acceptable to those parties and shall aim to minimise resource consumption.

Note: At the date of this consent, an appropriate electronic format for submission to the Director-General is the "portable document format" (pdf) or another format that may be readily converted to pdf.

### **Statutory Requirements**

- 1.6 The Applicant shall ensure that all necessary licences, permits and approvals are obtained and kept up-to-date as required throughout the life of the ceramic tile manufacturing facility. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approvals.

### **Compliance**

- 1.7 The Applicant shall ensure that all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this consent.
- 1.8 The Applicant shall be responsible for the environmental impacts resulting from the actions of all persons on the site, including any visitors.
- 1.9 Prior to the commencement of each of the events listed from a) to b) below, or within such period as otherwise agreed by the Director-General, the Applicant shall certify in writing, to the satisfaction of the Director-General, that it has complied with all conditions of this consent applicable prior to the commencement of that event.

Where an event is to be undertaken in stages, the Applicant may, subject to the agreement of the Director-General, stage the submission of compliance certification

consistent with the staging of activities relating to that event. The events referred to in this condition are as follows:

- a) construction of the ceramic tile manufacturing facility; and
- b) operation of the ceramic tile manufacturing facility.

1.10 Notwithstanding conditions 1.9 of this consent, the Director-General may require an update on compliance with all, or any part, of the conditions of this consent. Any such update shall meet the reasonable requirements of the Director-General and be submitted within such period as the Director-General may agree.

1.11 The Applicant shall meet the requirements of the Director-General in respect of the implementation of any measure necessary to ensure compliance with the conditions of this consent, and general consistency with the EIS and those documents listed under condition 1.2. The Director-General may direct that such a measure be implemented in response to the information contained within any report, plan, correspondence or other document submitted in accordance with the conditions of this consent, within such time as the Director-General may agree.

### **Dispute Resolution**

1.12 In the event that a dispute arises between the Applicant and Council or a public authority other than the Department, in relation to a specification or requirement applicable under this consent, the matter shall be referred by either party to the Director-General, or if not resolved, to the Minister, whose determination of the dispute shall be final and binding on all parties. For the purpose of this condition, "public authority" has the same meaning as provided under section 4 of the Act.

Note: Section 121 of the *Environmental Planning and Assessment Act 1979* provides mechanisms for resolution of disputes between the Department, the Director-General, councils and public authorities.

## **2. CONSTRUCTION AND OCCUPATION CERTIFICATION**

2.1 In relation to the construction and occupation of the ceramic tile manufacturing facility, the Applicant shall provide to the Director-General and Council, the following:

- a) written notification of the appointment of a Principal Certifying Authority;
- b) copies of all Construction Certificates issued for the ceramic tile manufacturing facility;
- c) written notification of the intention to commence construction work, to be received at least two working days prior to the commencement of construction. In the event that more than one Construction Certificate is issued, notification shall be provided prior to the commencement of construction the subject of each Certificate;
- d) copies of all Occupation Certificates issued for the ceramic tile manufacturing facility; and
- e) written notification of the intention to occupy the ceramic tile manufacturing facility, to be received at least two working days prior to occupation. In the event that more than one Occupation Certificate is issued, notification shall be provided prior to the occupation the subject of each Certificate.

2.2 The Applicant shall provide all information necessary for the Principal Certifying Authority to determine that the ceramic tile manufacturing facility will comply with:

- a) the Building Code of Australia; and
- b) all relevant provisions of the Act, including the payment of a long service levy under section 34 of the *Building and Construction Industry Long Service Payments Act 1986*.

- 2.3 Prior to the commencement of any construction work associated with the ceramic tile manufacturing facility, the Applicant shall erect signs at the construction site and in a prominent position at the site boundary where the sign can be viewed from the nearest public place. The sign shall indicate:
- a) the name, address and telephone number of the Principal Certifying Authority;
  - b) the name of the person in charge of the construction site and telephone number at which that person may be contacted outside working hours; and
  - c) a statement that unauthorised entry to the construction site is prohibited.

The signs shall be maintained for the duration of construction works.

### **3. UTILITIES AND PUBLIC WORKS**

- 3.1 The Applicant shall identify (including, but not limited to the position and level of service) all public utility services on the site, roadway, nature strip, footpath, public reserve, or any public areas that are associated with, and/ or adjacent to the site, and/ or are likely to be affected by the construction and operation of the ceramic tile manufacturing facility.
- 3.2 The Applicant shall consult with the relevant provider of the utilities identified in condition 3.1 and make arrangements to adjust and/ or relocate their services as required. The cost of any such adjustment and/ or relocation of services shall be borne by the Applicant.
- 3.3 Prior to the issuing of the first construction certificate, the Applicant shall provide documentary evidence from the utility providers identified in condition 3.1, to the Principal Certifying Authority, confirming that their requirements have been satisfied.
- 3.4 Prior to the commencement of any construction works required in relation to the ceramic tile manufacturing facility, the Applicant shall advise the Council in writing and/or photographs of any existing damage to Council's property. Should no damage exist to Council's property, then a statement to this effect must be provided to Council in writing, prior to the commencement of construction.

### **4. ENVIRONMENTAL PERFORMANCE**

#### **Air Quality Impacts**

##### ***Odour***

- 4.1 <sup>2</sup>The Applicant must not cause or permit the emission of offensive odours from the site. For the purpose of this condition, "offensive odour" has the same meaning as defined under Section 129 of the *Protection of the Environment Operations Act 1997*.

##### ***Dust Emissions***

- 4.2 <sup>3</sup>The Applicant shall design, construct, operate and maintain the ceramic tile manufacturing facility in a manner that minimises or prevents the emission of dust from the site.
- 4.3 <sup>4</sup>The Applicant shall take all practicable measures to ensure that all vehicles entering or leaving the site and carrying a load that may generate dust are covered at all times, except during loading and unloading. Any such vehicles shall be covered or enclosed in a manner that will prevent emissions of dust from the vehicle at all times.

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<sup>2</sup> Incorporates an EPA General Term of Approval (O1.1)

<sup>3</sup> Incorporates an EPA General Term of Approval (O2.1)

<sup>4</sup> Incorporates an EPA General Term of Approval (O2.3)

- 4.4 <sup>5</sup>All trafficable areas and vehicle manoeuvring areas on the site shall be maintained in a condition that will minimise the generation or emission of wind blown or traffic generated dust from the site at all times.

### Discharge Limits

- 4.5 <sup>6</sup>The Applicant shall design, construct, operate and maintain the ceramic tile manufacturing facility to ensure that emissions of pollutants to air only occur from the discharge points listed in Table 1 below, and that for each discharge point, the concentration of each pollutant listed does not exceed the maximum allowable discharge concentration limit for that pollutant at the discharge point. All concentration limits specified in the table are based on 101.3 kPa, 273 K, dry reference conditions, or as otherwise indicated in this condition, and are to be determined in accordance with the monitoring requirements described under conditions 5.1 and 5.3.

**Table 1. Maximum Allowable Discharge Concentration Limits (Air)**

Discharge Point	Pollutant	Maximum Allowable Discharge Concentration Limit (mgm <sup>-3</sup> )
1 – Dust extractor clay preparation CP1&2	Solid particles	20
2 – Dust extractor clay preparation CP3&4	Solid particles	20
3 – Pressing and drying PD1&2	Solid particles	20
4 – Pressing and drying PD3&4	Solid particles	20
5 – Drier D1	Solid particles	20
6 – Drier D2	Solid particles	20
7 – Drier D3	Solid particles	3
8 – Drier D4	Solid particles	3
9 – Glaze Line	Solid particles	20
10 – Selection SL1234	Solid particles	20
11 – Vacuum Plant 1234	Solid particles	20
12 – Spray Drier SD1 (for stages 1 & 2)	Solid particles	20
13 – Spray Drier SD2 (for stages 3 & 4)	Solid particles	20
14 – Kiln KP1	H <sub>2</sub> SO <sub>4</sub> mist, SO <sub>3</sub> , or both as SO <sub>3</sub>	100
	Any fluorine compound (HF)	5
	NO <sub>2</sub> or NO, or both <sup>a</sup>	100
	Hazardous substances (Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Ni, Se, Sn, V)	1
	Cadmium	0.1
	Mercury	0.1
	Solid particles <sup>a</sup>	20
15 – Kiln KP2	H <sub>2</sub> SO <sub>4</sub> mist, SO <sub>3</sub> , or both as SO <sub>3</sub>	100
	Any fluorine compound (HF)	5
	NO <sub>2</sub> or NO, or both <sup>a</sup>	100
	Hazardous substances (Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Ni, Se, Sn, V)	1
	Cadmium	0.1
	Mercury	0.1
	Solid particles <sup>a</sup>	20
16 – Kiln KP3	H <sub>2</sub> SO <sub>4</sub> mist, SO <sub>3</sub> , or both as SO <sub>3</sub>	100
	Any fluorine compound (HF)	5
	NO <sub>2</sub> or NO, or both <sup>a</sup>	100

<sup>5</sup> Incorporates an EPA General Term of Approval (O2.2)

<sup>6</sup> Incorporates EPA General Terms of Approval (P1.1 and L3.1)

	Hazardous substances (Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Ni, Se, Sn, V)	1
	Cadmium	0.1
	Mercury	0.1
	Solid particles <sup>a</sup>	3
17 – Kiln KP4	H <sub>2</sub> SO <sub>4</sub> mist, SO <sub>3</sub> , or both as SO <sub>3</sub>	100
	Any fluorine compound (HF)	5
	NO <sub>2</sub> or NO, or both <sup>a</sup>	100
	Hazardous substances (Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Ni, Se, Sn, V)	1
	Cadmium	0.1
	Mercury	0.1
	Solid particles <sup>a</sup>	3
18 – Hot air cooling HAC1	Solid particles	5
19 – Hot air cooling HAC2	Solid particles	5
20 – Hot air cooling HAC3	Solid particles	2
21 – Hot air cooling HAC4	Solid particles	2

a. Concentration limits apply under 101.3 kPa, 273 K, 7% O<sub>2</sub>, dry reference conditions

### Load Limits

- 4.6 <sup>7</sup>For each assessable pollutant identified in Table 2 below, the total load discharged from the site during the reporting period must not exceed the load limit specified for that pollutant in that Table. The total load of the assessable pollutant must be calculated in accordance with the relevant load calculation protocol, as defined by EPA guidelines.

**Table 2. Maximum Allowable Load Limits (Air)**

Assessable Pollutant	Maximum Allowable Load Limit (kg)
Fine Particulates	101368
Coarse Particulates	1075
Fluoride	3701
Sulfur oxides	73657
Nitrogen oxides	73657

Note: an assessable pollutant is a pollutant which affects the licence fee payable for the Environment Protection Licence (EPL) issued. The reporting period is defined as the period of 1 year, the first reporting period commencing from the date on which the EPL commences.

### Stack Discharge Design Requirements

- 4.7 <sup>8</sup>The design parameters for each discharge point identified in Table 3 below shall meet the requirements specified in that Table. All stacks shall be designed, constructed, operated and maintained in accordance with good engineering practice in order to minimise the effects of stack tip downwash and building wake effects on ground-level air pollutant concentrations.

**Table 3. Stack Discharge Design Requirements**

Discharge Point <sup>a</sup>	Minimum Stack Height (m)	Minimum Stack Discharge Velocity (ms <sup>-1</sup> )	Maximum Stack Diameter (m)
1, 2	32	17.5	1.1
3, 4	32	17.7	1.0
5, 6, 7, 8	18	5.2	1.0
9	32	16.0	1.0
10	14	15.7	0.5
11	32	14.7	0.2
12, 13	32	21.9	1.3

<sup>7</sup> Incorporates EPA General Terms of Approval (L2.1 and L2.2)

<sup>8</sup> Incorporates an EPA General Term of Approval (U1.1)

14, 15, 16, 17	24	26.0	0.75
18, 19, 20, 21	16	17.4	1.0

a. The numbering system used to identify the discharge points in the above table is the same as that described in Table 1 of condition 4.5.

Note: For the purposes of this condition, a number of publications may be referred to for determining good engineering practice stack height, including:

- a) USEPA, 1985, *Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations)*, revised EPA-450/4-80-023R, United States Environmental Protection Agency, Washington DC, USA;
- b) USEPA, 1995, *User's Guide to the Building Profile Input Program*, revised February 1995, EPA-454/R-93-038, United States Environmental Protection Agency, Washington DC, USA; and
- c) USEPA, 1997, *Addendum to ISC3 User's Guide, The PRIME Plume Rise and Building Downwash Model*, United States Environmental Protection Agency, Washington DC, USA.

4.8 <sup>9</sup>To ensure undesirable building wake effects do not impede the predicted dispersion of air pollution from the ceramic tile manufacturing facility, the following requirements shall be met:

- a) no building or structure constructed at the site shall exceed the dimensions (height, width and length) specified for it in the EIS;
- b) buildings and structures may only be located strictly in accordance with the layout specified in the EIS; and
- c) only buildings and structures identified in the EIS or this consent shall be constructed.

Note: The Department recognises that the Applicant may be able to demonstrate that alternative works/ design would not adversely affect the dispersion of emissions from the ceramic tile manufacturing facility. Should the Applicant propose to make any alterations to works/ design for the facility, then an appropriate level of assessment/ approval under the *Environmental Planning and Assessment Act 1979* may be required.

4.9 <sup>10</sup>The Applicant shall design, construct, operate and maintain the ceramic tile manufacturing facility in a manner that will enable:

- a) the kiln stacks (discharge points 14, 15, 16, and 17) to be increased in height and/ or have devices attached to increase discharge velocity; and
- b) retro-fitting of additional pollution control devices.

Note: This condition has been imposed to ensure the ceramic tile manufacturing facility is built in a manner that would not preclude the imposition of remedial measures on the facility, should the air quality monitoring required under this consent identify that remedial measures are necessary to bring the ceramic tile manufacturing facility into compliance.

### **Performance Guarantees**

4.10 <sup>11</sup>Prior to the commencement of construction of the ceramic tile manufacturing facility, the Applicant shall provide manufacturer's performance guarantees for all plant and equipment to demonstrate to the satisfaction of the EPA, that all sources of air pollutants will comply with the emission concentration limits specified under condition 4.5.

### **Meteorological Station**

<sup>9</sup> Incorporates an EPA General Term of Approval (U1.2)

<sup>10</sup> Incorporates an EPA General Term of Approval (U1.3)

<sup>11</sup> Incorporates an EPA General Term of Approval (U2.1)

- 4.11 <sup>12</sup>In the event that the Applicant is unable to obtain data from a meteorological station that is representative of the conditions at the site, the Applicant shall establish its own meteorological station in the vicinity of the site, to meet the requirements of the EPA. The monitoring station shall be used to undertake the Meteorological Monitoring Program required under condition 5.9 of this consent.

Note: The Applicant must provide a detailed rationale, to the satisfaction of the EPA, that data obtained from the meteorological station (existing or otherwise) will be representative of the conditions at the site.

### Noise Impacts

- 4.12 Construction activities associated with the ceramic tile manufacturing facility, including the arrival and departure of vehicles delivering or removing materials from the site, shall only be carried out between the following hours:
- 7:00 am and 6:00pm from Monday to Friday inclusive;
  - 7:00 am and 5:00pm on Saturdays; and
  - at no time on a Sunday or a public holiday.

Outside of these hours, construction activities are permitted to occur (with the exception of earthworks and building construction activities) provided it meets the operational noise criteria as defined in condition 4.14.

- 4.13 Operation activities associated with the ceramic tile manufacturing facility may be carried out 24 hours a day 7 days a week.

- 4.14 <sup>13</sup>The Applicant shall operate and maintain the ceramic tile manufacturing facility to ensure that for the most affected residential receiver, the noise level at that receptor does not exceed the maximum allowable noise contribution limit specified in Table 4 below.

**Table 4. Maximum Allowable Noise Contribution Limit (dB(A))**

Receiver Location	Day <sup>a</sup>	Evening <sup>b</sup>	Night <sup>c</sup>
	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)	L <sub>Aeq</sub> (15 minute)
Most affected residential receiver	41 dB(A)	39 dB(A)	35 dB(A)

a. Day is defined as the period from 7:00am to 6:00pm Monday to Saturday and 8:00am to 6:00pm on Sundays and public holidays.

b. Evening is defined as the period from 6:00pm to 10:00pm Monday to Sunday and public holidays.

c. Night is defined as the period from 10:00pm to 7:00am Monday to Saturday and 10:00pm to 8:00am on Sundays and public holidays.

- 4.15 <sup>14</sup>For the purpose of assessment of noise contributions specified under condition 4.14, noise from the ceramic tile manufacturing facility shall be:

- measured at the most affected point on or within the receptor site boundary; and
- where applicable, subject to the modification factors provided in Section 4 of the *New South Wales Industrial Noise Policy* (EPA, 2000).

- 4.16 <sup>15</sup>Notwithstanding condition 4.15 of this consent, should direct measurement of noise from the site be impractical, the Applicant may employ an alternative noise assessment method deemed acceptable by the EPA (refer to Section 11 of the *New South Wales Industrial Noise Policy* (EPA, 2000)). Details of such an alternative noise assessment method accepted by the EPA shall be submitted to the Director-General prior to the implementation of the assessment method.

- 4.17 To protect against sleep disturbance, noise from the site shall not exceed the L<sub>A1(1 minute)</sub> noise level of 45 dB(A) at the nearest residential receiver most affected by noise from

<sup>12</sup> Incorporates an EPA General Term of Approval (U3.3)

<sup>13</sup> Incorporates an EPA General Term of Approval (L6.1)

<sup>14</sup> Incorporates EPA General Terms of Approval (L6.2 and L6.3)

<sup>15</sup> Incorporates an EPA General Term of Approval (L6.3)

the operation of the ceramic tile manufacturing facility. This noise limit shall be measured at 1 metre from the dwelling façade and shall apply during the night period only (defined in condition 4.14).

- 4.18 <sup>16</sup>The maximum allowable noise contributions identified in conditions 4.14 and 4.17 apply under all meteorological conditions measured at 10 metres above ground level, except:
- a) during rain and wind speeds greater than 3ms<sup>-1</sup>; or
  - b) from 6:00pm to 7:00am during intense temperature inversions, which are indicated by cloud cover of less than 40% and wind speeds of less than 1.0ms<sup>-1</sup>.

### **Water Quality Impacts**

- 4.19 <sup>17</sup>Except as may be expressly provided by a licence under the *Protection of the Environment Operations Act 1997* in relation to the ceramic tile manufacturing facility, section 120 of that Act (pollution of waters) shall be complied with, in, and in connection with, the carrying out of the ceramic tile manufacturing facility.

### **Erosion and Sediment Control**

- 4.20 Prior to the commencement of construction, the Applicant shall provide documentary evidence to, and to the satisfaction of, the Director-General confirming that all erosion and sedimentation controls are in place.
- 4.21 All construction vehicles exiting the site, having had access to unpaved areas, shall depart via a wheel-wash facility.
- 4.22 All erosion and sedimentation controls required as part of this consent shall be maintained at design capacity for the duration of the construction works, and until such time as all ground disturbed by the construction works, has been stabilised and rehabilitated so that it no longer acts as a source of sediment.

### **Site Drainage and Stormwater**

- 4.23 The construction and operation of the ceramic tile manufacturing facility shall not concentrate or lead to an increase in the rate of flow of stormwater discharged from the site over and above the pre-development flow conditions.
- 4.24 The Applicant shall design, construct, operate and maintain all stormwater infrastructure to direct all stormwater runoff to the site's stormwater detention basins. Such stormwater infrastructure shall be capable of handling all stormwater discharges up to and including a 1 in 100 year ARI storm event.
- 4.25 Where stormwater discharge from the site is proposed in any location other than existing drainage lines, the Applicant shall create or have created any easements over the downstream connection point(s) such that the stormwater can legally be drained onto privately-owned adjoining property.

Note: This condition acknowledges that existing stormwater runoff from the site drains to the golf course and that the development is unlikely to affect the rate of flow or the point of discharge at that location, and therefore, no easement is required to legally drain the water.

### **Traffic and Transport Impacts**

#### ***Parking***

<sup>16</sup> Incorporates an EPA General Term of Approval (L6.1)  
<sup>17</sup> Incorporates an EPA General Term of Approval (L1.1)

- 4.26 The Applicant shall make provisions for at least 42 car parking spaces and 2 additional disabled car parking spaces on-site. The carpark design shall comply with *AS2890.1 1993 Off-Street Car Parking*.
- 4.27 Disabled, visitor and service vehicle parking spaces and loading bays shall be clearly marked on the pavement, signposted and designated in accordance with the relevant Australian Standards.
- 4.28 All driveways, parking areas and vehicular turning areas shall be constructed to a standard of bitumen sealed gravel pavement or higher.
- 4.29 All parking and loading/unloading bays, truck docks, driveways and turning areas shall be kept clear of obstructions and shall not be used for the storage of goods, raw materials or waste material.
- 4.30 All loading and unloading of material associated with the ceramic tile manufacturing facility shall be carried out wholly within the site.
- 4.31 Vehicles associated with the ceramic tile manufacturing facility may not stand or park on any public road or footpath adjacent to the site at any time.

***Access and Internal Roadworks***

- 4.32 <sup>18</sup>The Applicant shall design and construct all concrete kerb laybacks in accordance with Council's Standard Drawing SD50.

Note: Council's Standard Drawing SD50 requires that the design and construction of concrete kerb laybacks are consistent with the following specifications:

- a) layback thickness of not less than 150mm;
- b) double reinforcement with two layers of F72 mesh;
- c) the top layer of reinforcement shall have 25mm clear cover to the top;
- d) the bottom layer of reinforcement shall have 50mm clear cover to the bottom;
- e) ready mixed concrete of 28 day compressive strength, and not less than 32Mpa shall be used; and
- f) finish shall be plain concrete with a broom finish, or as otherwise specified in the EIS.

- 4.33 <sup>19</sup>Heavy duty vehicular footpath crossings shall be designed and constructed as full width concrete slabs and in accordance with the design criteria contained in Council's Standard Drawings SD77 and SD78.

Note: Council's Standard Drawings SD77 and SD78 requires that the design and construction of heavy duty vehicular footpath crossings is consistent with the following specifications:

- a) concrete thickness not less than 150mm;
- b) double reinforcement with two layers of F72 mesh;
- c) the top layer of reinforcement shall have 25mm clear cover to the top;
- d) the bottom layer of reinforcement shall have 50mm clear cover to the bottom;
- e) ready mixed concrete of 28 day compressive strength, and not less than 32Mpa shall be used; and
- f) finish shall be plain concrete with a broom finish, or as otherwise specified in the EIS.

- 4.34 Prior to the commencement of construction for the works described in conditions 4.32 and 4.33, the Applicant shall provide documentary evidence to the Director-General, of Council's satisfaction with the design of the proposed works.

<sup>18</sup> Incorporates a Council General Term of Approval (1)

<sup>19</sup> Incorporates a Council General Term of Approval (2)

- 4.35 <sup>20</sup>The Applicant shall install and maintain barricades and lights to enclose the whole of the vehicular crossing work area for the duration of those works, and shall ensure that adjacent footpath areas are kept clear of debris at all times and in a safe condition for pedestrian access.
- 4.36 <sup>21</sup>Where concrete has been poured, the Applicant shall ensure that the works are closed to vehicular and pedestrian traffic for 7 days after the pour.
- 4.37 <sup>22</sup>After completion of works identified in conditions 4.32 and 4.33, the Applicant shall trim and grade the adjacent footpath in accordance with the requirements of Council.

Note: Council has indicated that the following specifications would satisfy this condition for the adjacent footpath:

- a) trimmed or filled along the edges of the work up to an even grade of 1 (vertical) to 4 (height);
- b) finish shall be plain concrete with a broom finish, or as otherwise specified in the EIS;
- c) all edges and dummy joints finished with a 75mm edging tool; and
- d) the kerb layback and footpath crossing slab shall not be integral, but separated by a full depth, bitumen impregnated joint filling strip.

- 4.38 Heavy vehicles entering the site shall not queue on Racecourse Road or Kyle Street at any time.
- 4.39 <sup>23</sup>The combined entry/ exit driveway shall have a width of at least 8.0 metres and an unrestricted internal entry length of at least 50.0 metres.
- 4.40 Notwithstanding condition 4.39, the driveway shall be designed and constructed to ensure that B-double vehicles can turn into or out of the site from Racecourse Road without:
- a) crossing on to the opposite side of the road; or
  - b) crossing on to the opposite side of the driveway
- 4.41 A median strip or similar shall be installed on the driveway to ensure that internal two-way traffic are separated, and shall be designed and constructed to the satisfaction of Council.
- 4.42 Directional pavement arrows shall be installed on all internal roads.
- 4.43 Landscaping at the site, including advertising signs, shall not affect driver sight distances for vehicles entering and exiting the site.

### **Waste Management Impacts**

- 4.44 The Applicant shall install and maintain toilet facilities at the site, at a rate of 1 toilet for every 20 persons (or part thereof) employed at the site during construction. Such toilet facilities shall be installed to the satisfaction of Council, and prior to the commencement of any other construction works at the site.
- 4.45 All building waste generated during the construction of the ceramic tile manufacturing facility shall be removed prior to the commencement of operation.

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<sup>20</sup> Incorporates a Council General Term of Approval (3)

<sup>21</sup> Incorporates a Council General Term of Approval (4)

<sup>22</sup> Incorporates a Council General Term of Approval (4)

<sup>23</sup> Incorporates a Council General Term of Approval (5)

- 4.46 A designated area for the storage and collection of waste and recyclable materials shall be provided at the site and shall be designed, constructed, operated and maintained in a manner so as not to cause a nuisance to adjoining properties.
- 4.47 The Applicant shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing or disposal, or any waste generated at the site to be disposed of at the site, except as expressly permitted by a licence under the *Protection of the Environment Operations Act 1997*.
- 4.48 All wastes generated on site during construction and operation of the ceramic tile manufacturing facility shall be classified in accordance with the EPA's publication *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes* and disposed of to a facility that may lawfully accept the waste.

## Hazards and Risk Impacts

### ***Bunding and Spill Management***

- 4.49 The Applicant shall store and handle all dangerous goods (as defined by the Australian Dangerous Goods Code) and combustible liquids strictly in accordance with:
- a) all relevant Australian Standards;
  - b) a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund; and
  - c) the EPA's Environment Protection Manual Technical Bulletin *Bunding and Spill Management*.

In the event of an inconsistency between the requirements listed from a) to c) above, the most stringent requirement shall prevail to the extent of the inconsistency.

## Soil Management

- 4.50 Prior to the commencement of any construction works that will result in the disturbance of any potentially contaminated soil, as identified in the report titled *Phase 1 Environmental Site Investigation – Proposed Lot 101, Racecourse Road, Rutherford* prepared by Parsons Brinckerhoff, dated 2002, the Applicant shall engage a suitably qualified person or team to undertake targeted soil sampling of those locations, to determine the potential impact on soil from previous land uses.
- 4.51 Should the sampling required under condition 4.50 identify contaminated soil, the Applicant shall, prior to the commencement of any remediation works on the site:
- a) provide the Director-General with a report that describes:
    - i) what the proposed remediation of the land would entail;
    - ii) how the proposed remediation of the land would be coordinated with the proposed construction works;
    - iii) what measures would be implemented to manage or mitigate any potential impacts associated with the remedial works;
    - iv) how the success of these measures would be monitored during the proposed remedial works; and
  - b) ensure that construction of any component of the ceramic tile manufacturing facility does not:
    - i) occur on any part of the site identified by the soil sampling required under condition 4.50, to be contaminated; or
    - ii) occur on any part of the site that may interfere with the ongoing remediation of those areas of the site identified under condition 4.50, to be contaminated;

until such time as the Applicant demonstrates, to the satisfaction of the Director-General, that the site has been remediated.

## Landscaping

- 4.52 Landscaping works at the site shall incorporate those species endemic to the area.
- 4.53 Landscaped areas at the site shall be kept clear of parked vehicles, stored goods, garbage and waste material.
- 4.54 The Applicant shall minimise the removal of trees and other vegetation from the site, and restrict any clearance to the areas occupied by buildings and paved surfaces, and those areas necessary for fire control, and shall be done in accordance with Council requirements.
- 4.55 Appropriate weed management for the site, especially landscaped areas, shall be undertaken for the life of the ceramic tile manufacturing facility. Details of the weed management for the site shall be included as part of the Landscape Management Plan required under condition 7.4 g).

## Visual Amenity Impacts

- 4.56 The Applicant shall ensure that all external lighting associated with the ceramic tile manufacturing facility is mounted, screened, and directed in such a manner so as not to create a nuisance to surrounding properties or roadways. The lighting shall be the minimum level of illumination necessary and shall comply with *AS 4282(INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting*.

## 5. ENVIRONMENTAL MONITORING AND AUDITING

### General Monitoring Requirements

- 5.1 <sup>24</sup>The results of all monitoring required under this consent shall be:
- in a legible form, or in a form that can readily reduced to a legible form;
  - kept for at least four years after the monitoring or event to which the results relate took place;
  - produced in a legible form to any authorised officer of the EPA or the Director-General, upon request; and
  - kept with the following details for each sample required to be collected:
    - the date(s) on which the sample was collected;
    - the time(s) at which the sample was collected;
    - the point at which the sample was collected; and
    - the name of the person who collected the sample.

### Air Quality Monitoring

#### ***Ambient Air Monitoring***

- 5.2 <sup>25</sup>The Applicant shall undertake ambient air monitoring for the nearest sensitive receptors or specialised land use, to be determined in consultation with the EPA, and employing the sampling and analysis method specified in Table 5.

**Table 5. Ambient Air Monitoring Requirements**

Monitoring Point(s)	Pollutant	Units of measure	Averaging Period	Frequency	Sampling Method
nearest sensitive receptors (EPA Identification Point 22)	Particulate Matter – PM <sub>10</sub>	µgm <sup>-3</sup>	-	1 day in 6, or continuous	AM-18 or AS 3580.9.8
nearest specialised	Any fluorine	µgm <sup>-3</sup>	24-hour, weekly,	Continuous	AM-7, AM-8

<sup>24</sup> Incorporates EPA General Terms of Approval (M2.1, M2.2 and M2.3)

<sup>25</sup> Incorporates EPA General Terms of Approval (P1.1, M4.1 and M5.4.4)

land use <sup>a</sup> (EPA Identification Point 23)	compound (HF)		30-day & 90-day		or AM-9
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a. Specialised land use includes all areas with vegetation sensitive to fluoride, such as grape vines and stone fruit.

### **Discharge Concentration Monitoring**

- 5.3 <sup>26</sup>During operation of each stage of the ceramic tile manufacturing facility (stages 1 to 4), the Applicant shall determine the concentration of each pollutant specified in Table 6 below, at the discharge points identified and employing the sampling and analysis method specified. All emission parameters for each discharge point shall be determined concurrently, at the frequency indicated in the table, and using the units of measure specified.

**Table 6. Discharge Concentration Monitoring Requirements**

Discharge Point(s) <sup>a</sup>	Pollutant	Units of measure	Sampling Method	Frequency
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 18, 19, 20, 21	Velocity	ms <sup>-1</sup>	TM-2	Post commissioning and annual
	Volumetric flow rate	m <sup>3</sup> s <sup>-1</sup>	TM-2	Post commissioning and annual
	Temperature	°C	TM-2	Post commissioning and annual
	Moisture content in stack gases	%	TM-22	Post commissioning and annual
	Dry gas density	kgm <sup>-3</sup>	TM-23	Post commissioning and annual
	Molecular weight of stack gases	g.gmole <sup>-1</sup>	TM-23	Post commissioning and annual
	Solid particles	mgm <sup>-3</sup>	TM-15	Post commissioning and annual
14, 15, 16, 17	H <sub>2</sub> SO <sub>4</sub> mist, SO <sub>3</sub> , or both as SO <sub>3</sub>	mgm <sup>-3</sup>	TM-3	Post commissioning and annual
	Any fluorine compound (HF)	mgm <sup>-3</sup>	TM-9	Post commissioning and annual
	NO <sub>2</sub> or NO, or both	mgm <sup>-3</sup>	TM-11	Post commissioning and annual
	Hazardous substances (Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Ni, Se, Sn, V)	mgm <sup>-3</sup>	TM-12, TM-13 & TM-14	Post commissioning and annual
	Cadmium	mgm <sup>-3</sup>	TM-12, TM-13 & TM-14	Post commissioning and annual
	Mercury	mgm <sup>-3</sup>	TM-12, TM-13 & TM-14	Post commissioning and annual
	Solid particles	mgm <sup>-3</sup>	TM-15	Post commissioning and annual
	Velocity	ms <sup>-1</sup>	TM-2	Post commissioning and annual
	Volumetric flow rate	m <sup>3</sup> s <sup>-1</sup>	TM-2	Post commissioning and annual
	Moisture	%	TM-22	Post commissioning and annual
	Dry gas density	kgm <sup>-3</sup>	TM-23	Post commissioning and annual
	Molecular weight of stack gases	g.gmole <sup>-1</sup>	TM-23	Post commissioning and annual
	CO <sub>2</sub>	%	TM-24	Post commissioning and annual
	O <sub>2</sub>	%	TM-25	Post commissioning and annual

a. The numbering system used to identify the discharge points in the above table is the same as that described in Table 1 of condition 4.5.

- 5.4 <sup>27</sup>The Applicant shall determine the sampling position for each discharge point identified in condition 5.3 in accordance with the EPA's test method TM-1.
- 5.5 <sup>28</sup>The Applicant may seek the approval of the Director-General to alter the frequency of any pollutant concentration or emission parameter determination required under condition 5.3 of this consent. Any request for approval shall only be made provided:

<sup>26</sup> Incorporates EPA General Terms of Approval (P1.1, M3.1 and M4.1)

<sup>27</sup> Incorporates an EPA General Term of Approval (M3.3)

<sup>28</sup> Incorporates an EPA General Term of Approval (M3.2)

- a) concentration/ parameter determination has been undertaken for a period of no less than 12 months (measured from the commencement of operation of stage 4 of the ceramic tile manufacturing facility);
- b) there has been no exceedence of any limit placed on the subject concentration/ parameter by this consent within the 12-month period;
- c) there has been no reasonable complaint received from the public in relation to the subject concentration/ parameter within the preceding 12-month period (refer to condition 6.3 of this consent); and
- d) the request is accompanied by written agreement of the EPA with the proposed alteration to the frequency of parameter determination.

Note: condition 5.5 recognises that on-going monitoring may demonstrate that air quality limits imposed under this consent are consistently met, and the need for rigorous and frequent monitoring may be relaxed.

### **Performance Monitoring**

- 5.6 <sup>29</sup>Within 90 days of commencement of operation of each stage of the ceramic tile manufacturing facility (stages 1 to 4), and during a period in which the facility is operating under design loads and normal operating conditions, the Applicant shall undertake a program for point source emission testing on each stack as described under condition 5.3 of this consent and undertake dispersion modelling for all air pollutants identified in condition 5.2 to confirm the air emission performance of the facility. The program shall meet the requirements of the EPA. For stages 2, 3 and 4 of the ceramic tile manufacturing facility, the Applicant shall confirm the results of the predictive air quality assessment undertaken to satisfy condition 1.4 of this consent, and evaluate the effectiveness of any additional mitigation measures applied to satisfy that condition.

A report providing the results of the program and dispersion modelling shall be submitted to the Director-General and the EPA within 28 days of completion of the testing required.

- 5.7 <sup>30</sup>In the event that a program undertaken to satisfy condition 5.3 of the consent indicates that the operation of any stage of the ceramic tile manufacturing facility, under normal operating conditions, does not comply with the limits or performance measures specified in the EIS, condition 4.5 of this consent, and the EPA's Impact Assessment Criteria described in *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW*, then the Applicant shall undertake an **Air Quality Mitigation Study** to provide details of remedial measures that the Applicant will implement to reduce air quality impacts to the levels required.

The **Air Quality Mitigation Study** shall include, but not necessarily be limited to the following:

- a) a technical review of all practicable mitigation options shall be carried out and the potential reduction in air quality impacts associated with each mitigation option quantitatively evaluated;
- b) identification of the mitigation option(s), as determined in part a), that will enable the ceramic tile manufacturing facility to meet the air quality limits specified in the consent and the extent of any difficulty in meeting these limits;
- c) a cost/benefit analysis of a range of mitigation options shall be carried out; and
- d) using the results of condition 5.3 and this condition, emissions concentration limits (point sources only) and management practices (point and diffuse sources) shall be specified for the most cost effective mitigation option that will ensure compliance with the conditions of this consent.

<sup>29</sup> Incorporates EPA General Terms of Approval (M1.1 and M1.2)

<sup>30</sup> Incorporates EPA General Terms of Approval (M1.3 and U3.1 to U3.6)

Results of the Air Quality Mitigation Study and a timetable for implementation of the recommendations from the Study shall be submitted to the Director-General for approval within 60 days of completion of the Study, or as otherwise agreed with the Director-General, and be accompanied by evidence that the EPA is satisfied that the remedial measures are acceptable.

Note: Air quality impacts associated with the ceramic tile manufacturing facility have been assessed to be a key issue in relation to environmental planning and assessment. A stringent feed-forward/ feedback mechanism (conditions 1.4, 5.6 and 5.7 of this consent) has been required to confirm the air emissions performance of the ceramic tile manufacturing facility at each stage (feedback), and to use established monitoring data to demonstrate acceptable air emissions performance prior to the progression to each subsequent stage of the facility (feed-forward). This concept is illustrated in Attachment A.

### ***Fluoride Monitoring***

- 5.8 <sup>31</sup>Prior to the commencement of operation, the Applicant shall prepare and implement a Fluoride Monitoring Program to monitor and assess the impacts of the emission and deposition of fluoride (particulate and gaseous) on the surrounding environment, particularly vegetation. The Program shall meet the requirements of the EPA, should there be any. The Program shall include, but not necessarily be limited to:
- a) locations at which monitoring of vegetation will be undertaken, including a map showing their locations in relation to the ceramic tile manufacturing facility;
  - b) monitoring of the fluoride levels in the following vegetation:
    - i) native vegetation (understorey and overstorey) within 3 kilometres of the site;
    - ii) cultivated vegetation within 10 kilometres of the site. The Applicant shall also undertake a visual assessment of foliar damage during the growing season at vineyards located within 10 kilometres of the site; and
    - iii) pasture grasses and forage crops from commercial grazing properties within 3 kilometres of the site.
  - c) procedures for monitoring and inspection of vegetation for indicators of a sub-lethal dose of fluoride or significant damage to vegetation (refer to condition 8.1);
  - d) details of at least one background survey of vegetation health that has been undertaken prior to the commencement of operation of the ceramic tile manufacturing facility. The methodology for the background survey shall be approved by the EPA prior to undertaking the survey; and
  - e) a periodic schedule for the inspection of vegetation at the monitoring locations, at a frequency of at least every three months.

The Fluoride Monitoring Program shall be submitted for the approval of the Director-General prior to the commencement of operation of Stage 1 of the ceramic tile manufacturing facility, and shall be accompanied by written evidence of the EPA's satisfaction with the Program.

Note: Hydrogen Fluoride is known to cause severe damage to vegetation and to animals that may ingest the vegetation. Periodic inspection of local vegetation is an indirect means of monitoring the ceramic tile manufacturing facility's performance with respect to air quality. Vegetation monitoring may also identify if fluoride deposition occurs outside the area predicted in the EIS, and thereby act as a trigger for any necessary remedial action.

### ***Meteorological Monitoring***

- 5.9 <sup>32</sup>In the event that the Applicant is unable to obtain data from a meteorological station that is representative of the conditions at the site, the Applicant shall prepare and

<sup>31</sup> Incorporates EPA General Terms of Approval (M5.1 to M5.3 and M5.4.1 to M5.4.3)

<sup>32</sup> Incorporates an EPA General Term of Approval (M5.4.5)

implement a Meteorological Monitoring Program to monitor meteorological conditions in the vicinity of the site. The Program shall meet the sampling requirements listed in Table 7 below.

**Table 7. Meteorological Monitoring Requirements**

Parameter	Units of measure	Averaging Period	Sampling Method	Frequency
Wind Speed @ 10 m	ms <sup>-1</sup>	1 hour	Continuously	AM-2 & AM-4
Wind Direction @ 10m	degrees (°)	1 hour	Continuously	AM-2 & AM-4
Sigma Theta @ 10m	degrees (°)	1 hour	Continuously	AM-2 & AM-4
Ambient Temperature @ 5m	°C	1 hour	Continuously	AM-4
Rainfall	mm	Daily	Continuously	AM-4
Siting				AM-1 & AM-4
Measurement				AM-2 & AM-4

### Noise Monitoring

5.10 <sup>33</sup>Within 90 days of commissioning of each stage of the ceramic tile manufacturing facility (stages 1 to 4), and during a period in which the facility is operating under design loads and normal operating conditions, the Applicant shall undertake a program to confirm the noise emission performance of the facility. The program shall meet the requirements of the EPA, and shall include, but not necessarily be limited to:

- a) noise monitoring, consistent with the guidelines provided in the *New South Wales Industrial Noise Policy* (EPA, 2000), to assess compliance with condition 4.14 of this consent;
- b) a comparison of the results of the noise monitoring required under a) above, and the predicted noise impacts detailed in the documents listed under condition 1.2b) to e) inclusive (that is, the EIS and additional information documents); and
- c) details of any entries in the Complaints Register (condition 6.3 of this consent) relating to noise impacts.

A report providing the results of the program shall be submitted to the Director-General and the EPA within 28 days of completion of the testing required under a).

5.11 <sup>34</sup>In the event that a program undertaken to satisfy condition 5.10 of the consent indicates that the operation of any stage of the ceramic tile manufacturing facility, under normal operating conditions, will lead to greater noise impacts than permitted under conditions 4.14 and 4.17 of this consent, then the Applicant shall provide details of remedial measures to be implemented to reduce noise impacts to levels required by that condition.

Details of the remedial measures and a timetable for implementation shall be submitted to the Director-General for approval within such period as the Director-General may require, and be accompanied by evidence that the EPA is satisfied that the remedial measures are acceptable.

### Auditing

5.12 Within three years of the commencement of Stage 1 of the operation of the ceramic tile manufacturing facility, and every three years thereafter or as otherwise required by the Director-General, the Applicant shall commission an independent person or team to undertake an Environmental Audit of the ceramic tile manufacturing facility. The

<sup>33</sup> Incorporates EPA General Terms of Approval (M6.1 and M6.2)

<sup>34</sup> Incorporates an EPA General Term of Approval (M6.2)

independent person or team shall be approved by the Director-General, prior to the commencement of the Audit. An **Environmental Audit Report** shall be submitted for comment to the Director-General, the EPA and Council, within one month of the completion of the Audit. The Audit shall:

- a) be carried out in accordance with *ISO 14010 - Guidelines and General Principles for Environmental Auditing* and *ISO 14011 - Procedures for Environmental Auditing*;
- b) assess compliance with the requirements of this consent, and other licences and approvals that apply to the ceramic tile manufacturing facility;
- c) assess the ceramic tile manufacturing facility against the predictions made and conclusions drawn in the EIS; and
- d) review the effectiveness of the environmental management of the ceramic tile manufacturing facility, including any environmental impact mitigation works.

The Director-General may, having considered any submission made by the EPA and/or Council in response to the Environmental Audit Report, require the Applicant to undertake works to address the findings or recommendations presented in the Report. Any such works shall be completed within such time as the Director-General may agree.

## 6. COMMUNITY INFORMATION AND INVOLVEMENT

- 6.1 Subject to confidentiality, the Applicant shall make all documents required under this consent available for public inspection upon request. This shall include provision of all documents at the site for inspection by visitors, and in an appropriate electronic format on the Applicant's internet site, should one exist.

### Complaints Procedure

- 6.2 <sup>35</sup>Prior to the commencement of construction of Stage 1 of the ceramic tile manufacturing facility, the Applicant shall ensure that the following are available for community complaints:

- a) a telephone number on which complaints about operations on the site may be registered;
- b) a postal address to which written complaints may be sent; and
- c) an email address to which electronic complaints may be transmitted, should the Applicant have email capabilities.

The telephone number, the postal address and the email address shall be displayed on a sign near the entrance to the site, in a position that is clearly visible to the public. These details shall also be provided on the Applicant's internet site, should one exist.

- 6.3 <sup>36</sup>The Applicant shall record details of all complaints received through the means listed under condition 6.2 of this consent in an up-to-date Complaints Register. The Register shall record, but not necessarily be limited to:

- a) the date and time, where relevant, of the complaint;
- b) the means by which the complaint was made (telephone, mail or email);
- c) any personal details of the complainant that were provided, or if no details were provided, a note to that effect;
- d) the nature of the complaint;
- e) any action(s) taken by the Applicant in relation to the complaint, including any follow-up contact with the complainant; and
- f) if no action was taken by the Applicant in relation to the complaint, the reason(s) why no action was taken.

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<sup>35</sup> Incorporates an EPA General Term of Approval

<sup>36</sup> Incorporates an EPA General Term of Approval

The Complaints Register shall be made available for inspection by the EPA or the Director-General upon request.

## 7. ENVIRONMENTAL MANAGEMENT

### Construction Environmental Management Plan (CEMP)

7.1 The Applicant shall prepare and implement a **Construction Environmental Management Plan (CEMP)** to outline environmental management practices and procedures to be followed during the construction of the ceramic tile manufacturing facility. The Plan shall include, but not necessarily be limited to:

- a) a description of all activities to be undertaken on the site during construction of the ceramic tile manufacturing facility, including an indication of stages of construction, where relevant;
- b) statutory and other obligations that the Applicant is required to fulfil during construction, including all approvals, consultations and agreements required from authorities and other stakeholders, and key legislation and policies;
- c) specific consideration of measures to address any requirements of the Department, Council and the EPA during construction;
- d) details of how the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts;
- e) a description of the roles and responsibilities for all relevant employees involved in the construction of the ceramic tile manufacturing facility; and
- f) the Management Plans listed under condition 7.2 of this consent.

The CEMP shall be submitted for the approval of the Director-General prior to the commencement of construction of stage 1 of the ceramic tile manufacturing facility. Notwithstanding, where construction work is to be undertaken in stages, the Applicant may, subject to the agreement of the Director-General, stage the submission of the CEMP consistent with the staging of activities relating to that work. Construction of each stage shall not commence until written approval has been received from the Director-General. Upon receipt of the Director-General's approval, the Applicant shall supply a copy of the CEMP to the Council and the EPA as soon as practicable.

7.2 As part of the CEMP for the ceramic tile manufacturing facility, required under condition 7.1 of this consent, the Applicant shall prepare and implement the following Management Plans:

- a) a **Fire Safety Study** covering all operations at the site to demonstrate BCA compliance. The study must cover all aspects detailed in the Department's publication *Hazardous Industry Planning Advisory Paper No. 2 - Fire Safety Guidelines* and the New South Wales Government's *Best Practice Guidelines for Contaminated Water Retention and Treatment Systems*. The Study shall include a strict maintenance schedule for essential services and other safety measures. The Study shall be submitted for the approval of the Commissioner of the NSW Fire Brigades prior to inclusion in the CEMP.
- b) a **Hazard and Operability Study** of the ceramic tile manufacturing facility chaired by an independent, qualified person or team. The independent person or team shall be approved by the Director-General. The Study shall be carried out in accordance with the Department's publication *Hazardous Industry Planning Advisory Paper No. 8 - HAZOP Guidelines*.

Note: Condition 7.2 b) of this consent does not necessary require the HAZOP chair to be independent of the Applicant. Rather, it requires the HAZOP chair to be independent of the design process for ceramic tile manufacturing facility the subject of this consent.

- c) a **Construction Safety Study** for the ceramic tile manufacturing facility, prepared in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 7 - Construction Safety Study Guidelines*.
- d) a **Noise Management Plan** to details measures to minimise noise emissions during construction of the ceramic tile manufacturing facility. The Plan shall include, but not necessarily be limited to:
  - i) identification of all equipment and/or processes that may emit noise during construction;
  - ii) specification of the noise criteria as it applies to the particular activity and measures to be implemented to ensure compliance with these criteria;
  - iii) procedures for the monitoring of noise emissions;
  - iv) protocols for the minimisation of noise emissions; and
  - v) description of procedures to be undertaken if any non-compliance is detected.
- e) <sup>37</sup>an **Erosion and Sedimentation Control Management Plan** to detail measures to minimise erosion and the discharge of sediment and other pollutants to land and/ or water during construction of the ceramic tile manufacturing facility. The Plan shall address the requirements of the EPA and Council, should there be any. The Plan shall be generally consistent with that outlined in the EIS and include, but not necessarily be limited to:
  - i) results of investigations into soils associated with the site, in particular the stability of the soil and its susceptibility to erosion;
  - ii) details of erosion, sediment and pollution control measures and practices to be implemented during construction of the ceramic tile manufacturing facility;
  - iii) demonstration that erosion and sediment control measures will conform with, or exceed, the relevant requirements and guidelines provided in the Department of Housing's publications *Soil and Water Management for Urban Development* and *Managing Urban Stormwater – Soils and Construction*, DLWC's publication *Urban Erosion and Sedimentation Handbook*, and the EPA's publication *Pollution Control Manual for Urban Stormwater*;
  - iv) design specifications for diversionary works, banks and sediment detention basins;
  - v) an erosion monitoring program during construction of the ceramic tile manufacturing facility;
  - vi) description of procedures to ensure that the measures implemented to control sediment and erosion on site, are maintained at or above design capacity at all times; and
  - vii) measures to address erosion, should it occur, and to rehabilitate / stabilise disturbed areas of the site.

### **Operation Environmental Management Plan (OEMP)**

7.3 The Applicant shall prepare and implement an **Operation Environmental Management Plan (OEMP)** to detail an environmental management framework, practices and procedures to be followed during the operation of the ceramic tile manufacturing facility. The plan shall include, but not necessarily be limited to:

- a) identification of all statutory and other obligations that the Applicant is required to fulfil in relation to operation of the ceramic tile manufacturing facility, including all consents, licences, approvals and consultations;
- b) a description of the roles and responsibilities for all relevant employees involved in the operation of the ceramic tile manufacturing facility;
- c) overall environmental policies and principles to be applied to the operation of the ceramic tile manufacturing facility;

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<sup>37</sup> Incorporates an EPA General Term of Approval (O3.1)

- d) standards and performance measures to be applied to the ceramic tile manufacturing facility, and a means by which environmental performance can be periodically reviewed and improved;
- e) management policies to ensure that environmental performance goals are met and to comply with the conditions of this consent;
- f) the Management Plans listed under condition 7.4 of this consent; and
- g) the environmental monitoring requirements outlined under conditions 5.1 to 5.11 of this consent, inclusive.

The OEMP shall be submitted for the approval of the Director-General no later than one month prior to the commencement of operation of Stage 1 of the ceramic tile manufacturing facility, or within such period otherwise agreed by the Director-General. Operation shall not commence until written approval has been received from the Director-General. Upon receipt of the Director-General's approval, the Applicant shall supply a copy of the OEMP to the EPA and Council as soon as practicable.

7.4 As part of the OEMP for the ceramic tile manufacturing facility, required under condition 7.3 of this consent, the Applicant shall prepare and implement the following Management Plans:

- a) an **Air Quality Management Plan** to outline measures to minimise and manage any impacts from the operation of the ceramic tile manufacturing facility on local air quality. The Plan shall address the requirements of the EPA, should there be any. The Plan shall include, but not necessarily be limited to:
  - i) identification of all major sources of particulate and gaseous air pollutants that may be emitted as result of the operation of the ceramic tile manufacturing facility, including identification of the major components and quantities of these emissions;
  - ii) monitoring of particulate and gaseous emissions from the ceramic tile manufacturing facility, in accordance with any requirements of the EPA;
  - iii) procedures for the minimisation of particulate and gaseous emissions from the ceramic tile manufacturing facility, and the reduction of these emissions over time, where appropriate;
  - iv) protocols for regular maintenance of process equipment to minimise the potential for dust emissions;
  - v) description of procedures to be undertaken if any non-compliance is detected; and
  - vi) mechanisms to consider and address cumulative air quality impacts in the context of development in the Rutherford industrial area.
- b) <sup>38</sup>a **Water Management Plan** to outline measures to control and manage surface water (including erosion and sedimentation), stormwater and process water associated with the operation of the ceramic tile manufacturing facility. The Plan shall be consistent with that outlined in the EIS and shall address the requirements of the EPA and Council, should there be any. The Plan shall include, but not necessarily be limited to:

***surface water, erosion and sedimentation management***

- i) measures to be implemented to minimise the potential for erosion from the site during the operation of the ceramic tile manufacturing facility and measures to maintain all erosion mitigating works at, or above design capacity;
- ii) demonstration that erosion and sedimentation control measures will conform with, or exceed, the relevant requirements and guidelines provided in DLWC's publication *Urban Erosion and Sedimentation Handbook*, the EPA's publication *Pollution Control Manual for Urban Stormwater*, and the Department of Housing's publication *Soil and Water Management for Urban Development*, and

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<sup>38</sup> Incorporates an EPA General Term of Approval (O4.1)

- iii) measures to rehabilitate erosion-affected areas and areas the subject of excavation, including tree, shrub and/ or cover crop species and implementation.

**stormwater management**

- i) details of the stormwater infrastructure to be installed;
- ii) demonstration that the stormwater control infrastructure will conform with, or exceed all relevant requirements and guidelines contained within the stormwater management plan for the catchment, should one exist, or with the EPA's publication *Managing Urban Stormwater: Council Handbook* should a stormwater management plan for the catchment not exist;
- iii) description of the procedures for planting and maintaining vegetation along stormwater channels and detention systems, to minimise the potential for erosion; and
- iv) description of the procedures for the installation and maintenance of the stormwater control infrastructure, including stormwater pollution control devices.

**process water management**

- i) details of how site water consumption will be minimised through water reuse and recycling;
  - ii) details of all process water treatment systems for the ceramic tile manufacturing facility, including discharge points, procedures for maintenance of the systems and water quality monitoring regimes, where relevant; and
  - iii) a program to monitor consumption of water at the site.
- c) an **Alternate Water Supply Strategy** with an aim to investigate and pursue options for the use of alternative sources of water, such as treated effluent from sewage treatment plants, as an alternative to the use of potable water to supply the facility.

Note: Options for the use of alternative water sources considered as part of the Alternate Water Supply Strategy may be the subject of a separate approvals process.

- d) a **Transport Code of Conduct** to outline management of traffic conflicts associated with the operation of the ceramic tile manufacturing facility. The Code shall meet the requirements of Council and the RTA, should there be any. The Code shall include, but not necessarily be limited to:
- i) details of any restriction to traffic routes;
  - ii) minimum requirements for vehicle maintenance to address noise and exhaust emissions;
  - iii) speed limits to be observed along routes to and from the sites and within the site; and
  - iv) behaviour requirements for vehicle drivers to and from the site and within the site.
- e) an **Emergency Plan** for the ceramic tile manufacturing facility. The Plan shall be prepared in accordance with the Department's publication *Hazardous Industry Planning Advisory Paper No. 1 - Industry Emergency Planning Guidelines*.
- f) a **Safety Management System**, covering all operations at the ceramic tile manufacturing facility and associated transport activities involving any hazardous materials. The System shall clearly specify all safety-related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to safety procedures. The System shall be developed in accordance with the Department's publication *Hazardous Industry Planning Advisory Paper No. 9 - Safety Management*.
- g) a **Landscape Management Plan** to outline measures to ensure appropriate development and maintenance of landscaping on the site. The Plan shall meet

the requirements of Council, should there be any. The Plan shall include, but not necessarily be limited to:

- i) details of all landscaping to be undertaken on the site;
- ii) details of existing and proposed utilities, as they relate to the development;
- iii) maximisation of flora species endemic to the locality in landscaping the site;
- iv) details of the car parking area and measures to prevent vehicle encroachment onto landscaped areas; and
- v) a program to ensure that all landscaped areas on the site are maintained in a tidy, healthy state.

7.5 Within three years of the commencement of operation, and at least every three years thereafter, the Applicant shall undertake a formal review of the Operation Environmental Management Plan (OEMP) required under condition 7.3 of this consent. The review shall ensure that the OEMP is up-to-date and all changes to procedures and practices since the previous review have been fully incorporated into the OEMP. The Applicant shall notify the Director-General, Council and the EPA of the completion of each review, and shall supply a copy of the updated OEMP to those parties on request. The Applicant shall also make any revised OEMP available for public inspection on request.

## 8. ENVIRONMENTAL REPORTING

### Incident Reporting

8.1 <sup>39</sup>The Applicant shall notify the EPA and the Director-General of any incident with actual or potential significant off-site impacts on people or the biophysical environment as soon as practicable after the occurrence of the incident. The Applicant shall provide written details of the incident to the EPA and the Director-General within seven days of the date on which the incident occurred.

Such an incident includes, but is not limited to, significant damage to vegetation that is identified through the means listed under condition 6.2 or through the monitoring required under condition 5.8 of this consent.

8.2 The Applicant shall meet the requirements of the Director-General to address the cause or impact of any incident, as it relates to this consent, reported in accordance with condition 8.1, within such period as the Director-General may agree.

Note: Condition 8.2 of this consent does not limit or preclude the EPA from requiring any action to address the cause or impact of any incident, in the context of the EPA's statutory role in relation to the ceramic tile manufacturing facility.

### Annual Performance Reporting

8.3 <sup>40</sup>The Applicant shall submit an **Annual Return** to the EPA in relation to the ceramic tile manufacturing facility, as defined and required by any licence issued under the *Protection of the Environment Operations Act 1997*. In the Return, the Applicant shall:

- a) report on the annual monitoring undertaken (where the activity has resulted in pollutant discharges);
- b) provide a summary of complaints relating to the ceramic tile manufacturing facility;
- c) report on compliance with licence conditions; and
- d) provide a calculation of licence fees (administrative fees and, where relevant, load-based fees) that are payable. If load-based fees apply, the Applicant shall be required to submit load-based fee calculation worksheets with the Return.

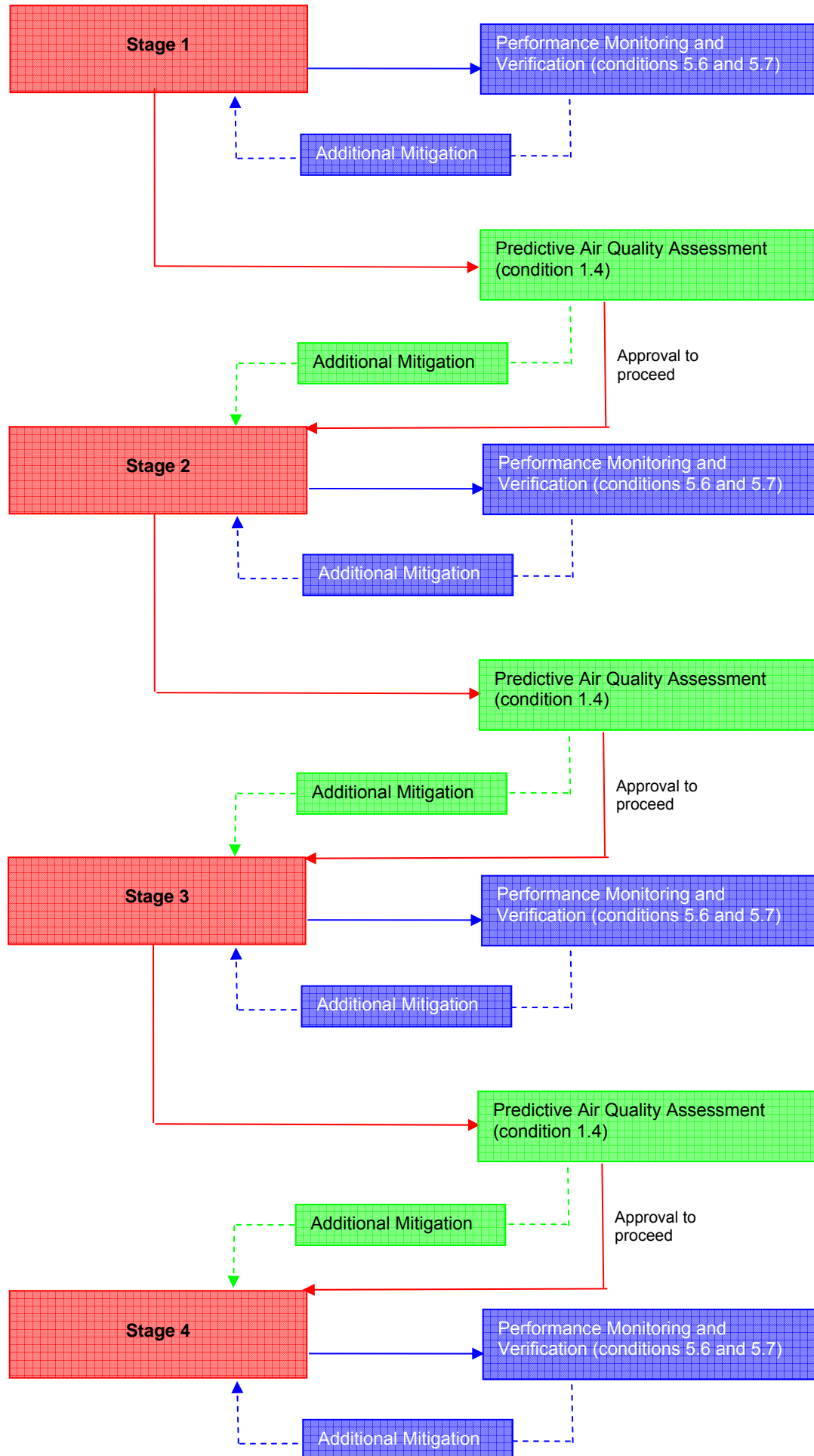
<sup>39</sup> Incorporates an EPA General Term of Approval (O5.1)

<sup>40</sup> Incorporates an EPA General Term of Approval

- 8.4 The Applicant shall, throughout the life of the ceramic tile manufacturing facility, prepare and submit for the approval of the Director-General, an **Annual Environmental Management Report** (AEMR). The AEMR shall review the performance of the ceramic tile manufacturing facility against the Operation Environmental Management Plan (refer to condition 7.3 of this consent), the conditions of this consent and other licences and approvals relating to the ceramic tile manufacturing facility. The AEMR shall include, but not necessarily be limited to:
- a) details of compliance with the conditions of this consent;
  - b) a copy of the Complaints Register (refer to condition 6.3 of this consent) for the preceding twelve month period (exclusive of personal details), and details of how these complaints were addressed and resolved;
  - c) a comparison of the environmental impacts and performance of the ceramic tile manufacturing facility against the environmental impacts and performance predicted in the EIS and the additional information listed under condition 1.2;
  - d) results of all environmental monitoring required under this consent and other approvals, including interpretations and discussion by a suitably qualified person;
  - e) a list of all occasions in the preceding twelve-month period when environmental performance goals for the ceramic tile manufacturing facility have not been achieved, indicating the reason for failure to meet the goals and the action taken to prevent recurrence of that type of incident;
  - f) identification of trends in monitoring data over the life of the ceramic tile manufacturing facility to date;
  - g) a list of variations obtained to approvals applicable to the ceramic tile manufacturing facility and to the site during the preceding twelve-month period; and;
  - h) environmental management targets and strategies for the following twelve-month period, taking into account identified trends in monitoring results.
- 8.5 The Applicant shall submit a copy of the AEMR to the Director-General, the EPA and Council every year, with
- a) the first AEMR to be submitted within twelve months of commencement of operation of the ceramic tile manufacturing facility; and
  - b) the second and subsequent AEMRs to be submitted concurrently with the EPA's Annual Return.
- 8.6 The Director-General may require the Applicant to address certain matters in relation to the environmental performance of the ceramic tile manufacturing facility, in response to review of the Annual Environmental Report and any comments received from the EPA and/or Council. Any action required to be undertaken shall be completed within such period as the Director-General may agree.

Note: The AEMR does not aim to satisfy any requirement of the EPA with regard to any Annual Return (refer to condition 8.3 of this consent), required under any licence issued for the ceramic tile manufacturing facility under the *Protection of the Environment Operations Act 1997*. It is noted, however, that the Applicant may consult with the Directors-General of the Department of Planning and the Environment Protection Authority with the aim of combining the reporting requirements of the AEMR and the Annual Return. These reporting requirements shall only be combined with the agreement of both Directors-General.

**ATTACHMENT A – AIR QUALITY FEED-FORWARD/ FEEDBACK MECHANISM**



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